



COMMUNITY GREENING REVIEW

ACGA



AMERICAN
COMMUNITY
GARDENING
ASSOCIATION

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***The Case for a
Community Greening
Research Agenda***

A letter from the Editor

For those of us involved on a daily basis in community greening, instinct and intuition tell us what we do is of significant value to our environment and our community.

We can see with our own eyes the joy of a child learning to grow tomatoes from seed, smell the rich perfume of basil covering what used to be a vacant lot, hear the gardeners talking about their plots with pride, touch the spiky rosemary and of course taste what we've grown and harvested. On a sensory level we know it's good.

But how do we communicate our intuition and our sensory perceptions to people outside of our community greening community? How do we convince decisionmakers and funders that community greening represents one of the best investments they can make? How do we elevate community greening from something that the wider public perceives as "nice" to something that they perceive as an essential, highly effective tool for building a more just and green society?

The answer, of course, is we produce hard evidence through sound academic research. Research that shows how direct encounters with nature and with gardening contribute to childrens' healthy development. Research that shows, with clear data, how community greening contributes to lower crime rates, stronger community relationships, improved food security, and more economically-sound neighborhoods. These are only a few of the positive effects community greening has been demonstrated to produce.

With this issue of the *Community Greening Review*, we've brought together some of the most accomplished researchers in the field to share their newest thoughts and insights. With this we hope that we can provide our readers with access to important resources that will help them make the case to their local leaders, funders or legislators about why community greening matters.

We hope what you read here helps you accomplish your next goal, whether it's to convince a neighborhood group to start a community garden, a foundation or business to provide you with the resources you need, or your Congressman to vote yes on progressive legislation. Enjoy!

Kristin Faurest, Ph.D, editor

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Preface from the Editors

Thanks to former ACGA Board member Amanda Edmonds for her leadership in founding an ACGA research sub-committee and for the applied theoretical platform upon which this volume rests. Thanks also to the many researchers involved in community greening that contributed to this volume. Most importantly, thanks to the greening community, without whom this volume would not exist.

*Keith G. Tidball
Marianne E. Krasny
Kristin Faurest*

ON THE COVER

Three Year Old with Tomatoes
Photographer: Karen Squires
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Community Greening Review is a tool for advocacy, publicity, networking, and providing the best technical assistance available for the design, planning, management and permanence of gardening, greening, and open space programs that emphasize community.

Community Greening Review provides a forum where professionals, volunteers, and supporters working on community gardening, greening, and open space issues can relate ideas, research, opinions, suggestions, and experiences.

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Mt. Hope ACGA Leadership
Workshop 2005

“Why a Research Issue of the *Greening Review*?”

ACGA



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In the summer of 2005, at the 26th annual meeting of the American Community Gardening Association (ACGA) in Minneapolis, Minnesota, the first Research Committee of ACGA meeting was convened. This was an organizational meeting, and included academics, greening practitioners, graduate students and undergraduates. The meeting was presided over by Amanda Edmonds, who was installed as the Research Committee Chairperson. Amanda received her Master of Science degree from the University of Michigan, studied under Rachel Kaplan, and brought her passion and vision for connecting research to practice within the realms of community greening. Through her leadership, the activity of the ACGA Research Committee, and the support of the ACGA Board of Directors and Executive Director, the idea of this research focused *Community Greening Review* was born.

Some community gardening and greening practitioners lack access to community gardening and greening research, and/or do not have the capacity to translate “research-speak” into utilitarian, applicable language.

BY

Keith G. Tidball

In her MS¹ Thesis, Amanda described research related to community gardening and greening activities that has emerged in the last two decades from a variety of academic disciplines and included varied topics such as the social, economic, physical, educational, and environmental impacts of community gardening and greening activities. She recognized that because this body of research spans many disciplines and subject areas, it is difficult to both identify it as a body of literature and know how, and where, to access it. A key observation of her work is that although community gardening and greening research is often undertaken with the intention of understanding and advancing the movement, discourse among community gardening and greening practitioners² reveal that the process often ends before findings are disseminated to them in accessible, usable ways.

Furthermore, Amanda observed through informal inquiries that some community gardening and greening practitioners lack access to community gardening and greening research, and/or do not

¹ Edmonds, A.M. 2004. Research information needs and practices of community gardening & greening practitioners.

Available at: http://mirlyn.lib.umich.edu/F/?func=direct&doc_number=004954339&local_base=MIU01_PUB

² “Practitioners” encompasses professionals, leaders, advocates, and affiliates. ‘Professionals’ implies paid or otherwise compensated employees of an organization, agency, or business. Leaders may be paid or volunteer, but hold a position of leadership in (a) garden(s) or program(s). Advocates and affiliates may or may not be directly involved in garden or greening, but are in a position to express support for such programs.

have the capacity to translate “research-speak” into utilitarian, applicable language.

In the course of Amanda’s research, a survey was mailed to the entire 2003 and two years lapsed membership of ACGA—one of the primary networks of people involved with this work—assessing the research-based information needs of community gardening and greening practitioners through questions about access to, use of, and preferred format for academic, research-based information. Information was also gathered on what topics and populations are of particular interest to community gardening and greening organizations. Results showed that respondents represent a broad constituency of community gardening and greening practitioners, that a majority of respondents search for and use research to both gain external support and to inform internal practice, turn primarily to the Internet and ACGA conferences to find information, and prefer to have access to both full electronic version and summarized findings of community gardening and greening research. Additionally, fields of priorities for research topics not emphasized in the 1992 ACGA Research Agenda emerged, including nutrition & health, children & youth, and ecological & environmental impacts of gardening.

This issue of the *Community Greening Review*, focused on community gardening and greening research, takes its cues in terms of both format and content from Amanda’s ground breaking research into the usability of community gardening and greening research by those who need it most, the community gardeners and advocates themselves. Long term goals for ACGA and the broader community gardening and greening movement include the collection and dissemination of research through an internet database and published conference proceedings; partnerships to sponsor, support, and disseminate research with universities, professional organizations, and related nonprofits; and the development a dynamic, participatory, regularly updated research agenda. We hope this research focused edition of the *Community Greening Review* will be a first step in bolstering ACGA’s efforts in disseminating and supporting research, and, ultimately in guiding, informing, and advancing the broader community gardening and greening movement.

GROWING A COMMUNITY RESOURCES AVAILABLE FROM THE AMERICAN COMMUNITY GARDENING ASSOCIATION

***A Handbook of Community Gardening* by Boston Urban Gardeners, edited by Susan Naimark; Published in 1982 by Charles Scribner’s Sons, New York ISBN 0-684-17466-9**

Brownfield Remediation Solutions for Urban Agriculture.

***City Farmer*: the most comprehensive site on the internet about urban agriculture, community gardening and sustainable agriculture.**

***Community Garden Start-Up Guide*: from the Common Ground program of University of California Cooperative Extension in Los Angeles**

***Creating Community Gardens*, by Dorothy Johnson, Executive Director, & Rick Bonlender, MN Green Coordinator, Minnesota State Horticultural Society Minnesota State Horticultural Society, 1970 Folwell Avenue, #161, Saint Paul, Minnesota 55108**

***How Does Our Garden Grow? A Guide to Community Garden Success*, an extensive manual on garden start up by ACGA Board member Laura Berman**

University of Missouri Extension “Community Gardening Toolkit”

***Urban Community Gardens*: Includes sections on benefits, getting started, organizations, funding, articles & publications, and gardens.**

***Urban Gardening Program: The Coordinator’s Book*, The Pennsylvania State University Cooperative Extension Service**

Community Greening Scholars Talk Shop: Highlights, Findings, and Future Directions for the Field

Keith G. Tidball & Marianne Krasny
Cornell University

Who We Interviewed



[Mark Francis](#)
University of California,
Davis

In 2007, 12 experts from the field loosely referred to as “community greening” were invited to take part in an interview in order to share their greening research. The participants were chosen because of their prominence or growing recognition. The occasion was the upcoming issue of the *Community Greening Review* which was intended to celebrate 20 years of community greening research. The focus on research was chosen in response to a demand from community greening organizations and individuals, who see community greening research as critical to improving their practices and to making a better case for the importance of their work when seeking support.



[Kenneth Helphand](#)
University of Oregon

What we did

We conducted 30-minute phone interviews with each of the experts, asking each luminary the following questions:

1. Can you describe an incident in your life that first inspired you to become engaged in community greening?
2. What motivates you to do community greening research?
3. What is your most important finding for greening advocates and policy makers?
4. How can the results of your work be used to advocate for community greening?
5. How can the results of your research be used to influence policy?
6. What are the important questions and research approaches for future community greening research?

The participants were encouraged to answer in a candid, conversational manner. They were discouraged from prepared or “canned” responses to the questions, though they were able to review the questions roughly a week in advance of the interview.



[Frances Kuo](#)
University of Illinois
Urbana

The following is an edited presentation of each of their responses. We were impressed with the answers, and with the sincere desire of the panel to put a human face on their life’s work. Though they are all involved in research, which some feel is unapproachable because it is too “academic,” we think you will agree that these stories are compelling and the recommendations and lessons that accompany them are worth hearing -- whether you are a community gardener, an organizer, a policy maker or an aspiring greening researcher.

We hope you will find their thoughtful replies interesting and inspiring.



[Greg McPherson](#)
USDA Forest Service,
Center for Urban
Forest Research, Pacific
Southwest Research
Station



[Laura Lawson](#)
University of Illinois



[Connie Nelson](#)
Lake Head University, Thunder
Bay, Ontario Canada

Describe an incident in your life that first inspired you to become engaged in community greening

Mark Francis

It was interesting to reflect on that question.

It's not something that you think about very much. But there's really two kind of moments in my life that were deciding moments that directed me both in terms of being interested in landscape architecture and gardens and green spaces and then more specifically in terms of community gardens, urban gardens. The first one was probably my mother, who dragged me out with her into our own garden when I was a teenager in Santa Barbara

and we together started to take a typical kind of tract house, vacant lot, bare piece of ground and try and transform it into a beautiful garden. She was and still is an amazing gardener. So that probably was the deciding factor if I think back to it, even though I'm sure it goes back to even earlier days of building forts in the woods and exploring the landscape around our house. The second one came later, after I had fulfilled my dream of becoming educated as a landscape architect. After I finished both undergraduate and graduate school I was invited to teach in the environmental psychology program at the graduate center of City University of New York. To teach Ph.D. students in environmental psychology

which then and even now seems odd because I never really had a course in psychology. But I was hired to teach design to social scientists that would then go out and work with architects and landscapers.

That was kind of my role, but coming from California and having lived and studied in the Bay Area and also in the Boston area, arriving in New York in the late '70s, was just an amazing experience and it was my first opportunity to develop some of my own research. As a young assistant professor I started looking at around the city and I could have easily flipped it to more of the historical parks and the high profile public spaces of the city. But I got more interested in these little green spaces that seemed to be bubbling out of the rubble in the neighborhoods that I bravely ventured out into. And in those days the South Bronx, the lower east side, parts of Brooklyn, were very much like Dresden after the war.

You kind of look at all that, and you're shocked at the destruction, at the abandonment and disinvestment and all of the things that were going on, and yet you find these little green rays of hope that people were building with their own hands. So I thought that would be interesting to study. So that led me down the path of doing some work on community gardens.



[Erika Svendsen](#)
USDA Forest Service,
Northern Research Station



[Kathleen Wolf](#)
College of Forest Resources,
University of Washington



[Rachel Kaplan](#)
Natural Resources and
Environment, University
of Michigan

Who We Interviewed



[Bill Sullivan](#)
University of Illinois



[Lynn Westphal](#)
USDA Forest Service,
North Central Research
Station



[Jenny Hampton](#)
Chicago State University

Kenneth Helphand

I'm a landscape architect and I teach landscape architecture here in Oregon and I teach courses in design and landscape history and theory. The things that made me become a landscape architect which would have been in the mid-1960s were things I saw going on in the city of New York. It was particularly changes in parks and playgrounds which I found tremendously exciting. This was under Thomas Hoving, who was the director of parks. I realized that that was something that I wanted to do. It took me a little while to find out who did that thing.

I originally went to graduate school in city planning and I changed the second day to landscape architecture because I realized the people who designed parks and gardens were landscape architects. And it was particularly parks. I came into landscape architecture essentially through the urban design route, not through the plant and horticulture route.

In terms of the community, for me and the people I work with and my kind of

understanding of landscape architecture, there are two sides: the garden side and the community side. From the garden side, the garden is really kind of the central metaphor and idea of landscape architecture whether it's historically the private garden or the public garden, which is just another word for a park. The community side is landscape architecture, which has its origins, and at least to a certain degree, as a kind of public profession with reformist tendencies. Kind of a social movement. So in terms of the community side, either engagement with the community or design with and for the community are things that are central to what landscape architects do. The community gardening and greening movement which we think of as recent but as you well know is not, is something that in some places and some schools, in some cities and some parts of the country, gets more emphasis than in others. At least in the part of the country where I've lived most of my life, in Oregon, it's something that is central. It's a state and a community that has long term environmental consciousness at all scales, from state land use planning down to the community scale. You have to defend but not always argue for it in the same way you might in other parts of the country.

Frances Kuo

I did not get inspired to become engaged in community greening; I think I might even characterize myself as having been dragged into it by the findings. So I am not someone who grew up as a tree lover or a community activist. Rather I was interested in the more general question of how environments can be supportive or even more specifically how environments undermine people. And my first work was in Chicago public housing in the inner city and I was interested in the dark side of the environment. So how crowding and noise have created the need for constant vigilance against all kinds of dangers; actually harmed people's ability to function but what happened was the data just kept saying

trees matter and so it's really a matter of being led into this work by the findings.

I wanted to show that perhaps one reason you saw less than optimal patterns of behavior and functioning in the inner city in terms of passivity or helplessness or aggression might be partly connected to the incredibly difficult living conditions. That being in a noisy, crowded, dangerous environment 24 hours a day is incredibly draining and then would result in people not functioning as well as they might otherwise. And of course there were indications to that affect but the clearest thing that came out of our findings was that trees matter and that green space really played a very consistent and clear role in how well people are doing.

Greg McPherson

I grew up in Howell, a small town in Michigan in between Detroit and Lansing, and when I was a little boy many of the streets in that community were graced with some very beautiful American elm trees. And I remember playing under that arch, in the shade and protection from the elements and the beauty associated with those mature trees. And one day some people came by and they attached these vials with rubber tubes to the trees. And I realized that those trees were beginning to suffer, to die back and that they were trying to save those trees and improve their health. And after a while they actually went in and started cutting the roots, you know

tunneling between the trees and it was all kind of for naught because one by one those large American elms died. And they came down and all of a sudden the street that I lived on was totally transformed into this very open space; a treeless environment. It just struck me as a tremendous loss and I really didn't like it as a kid. That exposed

and open type of environment they created, even though some replacement trees were planted, it really totally changed my play environment. You know at the time I didn't really have any idea I'd be studying urban forestry and become a researcher but I know that struck me in a very visceral way.

Michigan has a pretty warm and humid summer at least for a few weeks in August. And it can get pretty hot. So I enjoyed having the shade and protection and the kind of roof that that canopy provided for not just the street but the front yards and so it was a kind of a filtered shade, clean air. And it was just kind of a protective type of feeling, a womb-like feeling that those trees created. And although they weren't trees that I could climb in, because it's so high up that they begin to branch, they just they had kind of an indescribable effect and their loss was noticed.



Garden Mosaic Action Project

Bill Sullivan

I trace this back to when I was young man, actually just a teenager, 13 years old. There was a landscape contractor working in our neighborhood. He was cutting a tree down and planting, kind of renovating, a residential landscape. I asked him if he wanted any help and he said he did. I ended up working for him all the way through college. Through that experience of working in probably hundreds of people's residential landscapes and small scale landscapes for commercial sites, I came to realize that the transformation that you make when you take someplace that's relatively barren or unadorned with vegetation and you plant trees and ground cover and shrubs, that you not only change

the physical appearance of the place, you make it more attractive. But you also really create a much more supportive place for people to live where they raise their families, where they come home after a long day of work and get some feeling of restoration, where they can grow old. And I felt that it was really kind of a high calling to be able to be involved in this process that seems fundamentally supportive to all the people that we worked for. And I guess that was, what kind of inspired me to first go to school and get an undergraduate and Masters Degree in Horticulture and then go onto Graduate School in Landscape Architecture and then finally go to do more advanced work with Rachel Kaplan at the University of Michigan, which led us even further.

Lynn Westphal

It was a circuitous route. I had a Bachelor's in South Asian Studies and nearly a Bachelor's in Anthropology. I'd been working the family gallery for a while and was trying to figure out what was next and somehow just landed on this Masters in Geography and Environmental Studies that's nearby and started on that. I certainly enjoyed my courses in introductions to policy around public land management, but I spent a lot of time wrestling around with what my Masters thesis would be on. By that point I had looked into a position with the Forest Service, at the researching end. I became a part-time forest Service employee and did a lot of data coding and managing the computers. My interest grew from there. I mean, I even remember some of my initial responses to some of the research highlights; I thought to myself "Yeah, and this matters because why?" But my cynicism abated as I got more and more into it and landed on doing my masters research on

urban forestry volunteers. I wanted to find out why those urban forestry volunteers do that, of all the things there are to volunteer in, you know, what were the motivations? What were the values and benefits? And so I did that work and it was some luck and the right timing when working with volunteers was becoming a bigger and bigger deal in urban community forestry and with community gardening as well.

So I did that research and was able to then present it in a number of workshops and conferences and it felt good to do something that was immediately useful to people. With things like finding that with these volunteers the more pragmatic benefits of the urban forest, energy savings in cooling your home and things like that, were not the primary aspect of the urban forest people were interested in, but it was more the health benefits, the spiritual benefits, the fact that the urban forest brings nature closer. Those kinds of things were what were really meaningful in driving a lot of the volunteers, and in turn inspired me.

Jenny Hampton

I grew up in a really small rural town in Missouri where I was surrounded by green space. Later I moved to Chicago and I went to community markets and farms and there was a bunch of rural parks, and that was my outdoor life. As a child I was always outside in green space and in Chicago it's quite a different story. I had to seek it out. After about four or five years of being in Chicago, public parks weren't enough for me and I wanted to get involved in something that was more community-oriented and I found community gardens. And that was

basically my savior in terms of what I felt I needed. It also inspired me to start doing research about what makes those places in urban areas tick.

I think green spaces, public parks, were, in the rural area that I grew up in, social kinds of places. For example, people would be there every Saturday going to farmer's markets and they played a lot of sports and did things in the green spaces in the rural areas. And in the city I didn't find as much community, as much social interaction, in the parks as I did in the rural areas. I guess that's where community gardens came in.



Rachel Kaplan

That's maybe the hardest one to answer. It's been an amorphous path, gradual, no real incident to spark it. So it's been, you know, 37, 38, 40 years, I don't know how long, but it's certainly nothing pivotal that launched it. However, there are many threads. Perhaps one that is closest to the gardening aspect of greening was a man at the University of Michigan who led something we called the Institute of Environmental Quality in the early '70s. He permitted some people to use a piece of land as a community garden. It was within view of his office. He called us up and we never knew why and said would you like to do some research about why that seems to be working? That led to our first psychological benefits of gardening study which was published in the early '70s and compared some of these community gardeners with home gardeners.

Lots of other paths about nearby nature and environmental preference led to dozens and dozens of studies across the world by our students here. Of course a lot of work is being done as a research team; my husband and I have been doing this for all this time together, and his perspective is more on the conceptual, theoretical side. So a lot of it is kind of feeding empirical work into theory, theory into empirical work. More recently our work has been more around a model which includes the environmental preference as one node, and a lot of the restoration work that has spawned all the wonderful work that Kuo and Sullivan, both our students, have done. It's a long life history.

In terms of inspiration, you know, working with students is wonderful. Each of them contributes their own spark and we contribute to theirs so it's very multi-dimensional.

Laura Lawson

For me, there are two inspirational moments. One, my father worked for the Redevelopment Agency in Los Angeles. As children we would go out to community projects and help build parks and that kind of thing. So that was embedded in me as a child. And then, two, when I was in college I was a struggling student and started vegetable gardening, for the first time in my life and realized how wonderful it was

to be self reliant with gardening. And how much I could grow by myself and that "sprouted" my interests in a big way too.

I had thought for a while that I would become an organic farmer but after a summer of an internship, apprenticeship at an organic farm I realized a) I'm a city girl and b) it was kind of more important to me at a community level rather than just at the individual level.

Connie Nelson

I think sometimes life decisions are complex and in order to know how we end up where we get to, a whole bunch of different things happen. For me there are two things in particular. One, there was an incident while I was a graduate student at Michigan State. There must have been hundreds of graduate students all living in graduate housing and this church across the street had plowed up their whole church yard and turned it into garden plots. Being one who was from a farm, I quickly discovered that I had a lot of friends around me that knew nothing about gardening. I found that whole experience so rewarding and I think it had a profound effect on my own and other people's lives. I think it made them much closer to nature than they'd ever been before and I think it helped with things like nutrition, physical activity and their

perspectives. That was one of the incidents that really motivated me. The other is a result of my position on the Lake Superior bi-national forum, which is an international joint commission program with two goals; zero tolerance for toxic discharge at point sources and restoration and protection of habitat. To my total surprise I found people from Departments of Natural Resources in the US and from Ministries in Canada who really viewed wilderness and greening as if what we needed to do was to get rid of people. Putting all this together I thought that we have to get people engaged in the landscape so that they can understand that people are an integral part of the process and that this idea of wilderness and human community being incompatible is not the ecological perspective that's really going to lead us to sustainability, because you're not going to eradicate people. That was my spark. I saw it as an opportunity to view people in nature and not outside nature.

Erika Svendsen

I was Urban and Community Watershed Forester, if that makes any sense, on a project in Baltimore called the Revitalizing Baltimore project. This was a collaborative between the School of Forestry, their resources initiative, the City of Baltimore, Forest Service and the Parks and People Foundation, to name a few. My job was to plant trees in underserved communities. I think the Forest Service was willing to risk and experiment on this one and try and understand and learn and maybe develop a national model. But in many ways I think a lot of folks expected to see pretty, nice, neatly planted trees in rows down Baltimore's famed roadhouse corridors. They also probably expected to see some really nice engaged stewards managing and caring for those trees. So, the incident that really inspired me was that when I found myself in these communities, the environment or the conception of the environment was present, but it was

very different than what we were talking about. For some the environment included issues like sanitation, employment, food security, child safety, issues stemming from family and juvenile court. These things took precedence. So what I learned by just listening and taking the advice of folks in the community was "hey, why don't we use these trees, if that's what you've got..."; because that's what I had, trees, about \$200,000 at the time for trees. "Why don't we use these trees to address some of these issues." In the case of one neighborhood, Franklin Square, which has been made very famous by David Simon's work, *Homicide Life In The Street In the Corner*, an HBO series and it was also a book, our first project was on that corner. It was a community garden. How an urban forester became relevant there was that we used our trees to kind of frame the garden, but also to reroute the path of drug dealers. In other words we tried to close off vacant lots because it's a typical situation where you've got vacant houses and vacant lots and the whole landscape and dynamic in a neighborhood is being changed. This was right in the middle of

the main drug dealing area, but also a place where there were lots of children. So children would come home on their way to school and pass these drug corners and there were already several deaths in the neighborhood by the time I got there. Several names to be put on memorial signs and the neighbors had had enough.

So that was the incident that had inspired me -- how greening could really be used in a way that was different than just reproducing these kind of three tree forms, and thinking a little bit more creatively and how we could use this to address some issues that had meaning.

Kathleen Wolf

For me there was not an incident so much as there was sort of an emerging realization. For my first real job out of undergraduate school after bumping about for a bit, I was recruited to be the first urban forester for the city of Key West Florida. That was a fascinating experience in many ways. Not the place you initially think about for an urban forest, but the flora is fascinating because the temperate conditions slam right into the tropics and you get this wonderful and sometimes very puzzling blend of things.

I graduated with a degree in biology as an undergrad and so I came to the job with quite a biological sciences and ecological perspective. I dutifully went about doing tree assessments and starting to prepare management plans. I ran into troubling perceptions, people's various perceptions about the forest and about nature in the city, and very deep emotions. Some very positive, some very negative. So the diversity of value and relationship that people had to what I started out as thinking

very much from a resource or biological perspective, became very intriguing to me. And so in that little hotbed of several years of being a municipal arborist, I wasn't called that but that's what I was doing, that's where it all took form.

There were some particularly emotional instances. One instance or a series of instances that I recall is trying to defend my budget request to the City Council and being pretty much disregarded and told that there were far more important things to deal with than trees and gardens. The other is, on occasion there would be vegetation feuds among neighbors or property owners. And someone would call looking for an official arbiter on the deal. The person would be in tears, totally distraught because a tree had been severely pruned or had been removed from a property line, and you know the associated story of "I planted that when my child was born, commemorated a lost parent" or things like that, which, in my education and training, no one ever talked about. They were some of the most difficult to respond to, and got me intrigued by the role these green things played in people's lives.



What motivates you to do community greening research?

FRANCIS I am motivated by a combination of being personally interested, and a continuing interest in why people garden. Also, my own discovery of this citywide movement in New York City to transform vacant lots into gardens plays into my motivation. I guess when you do this kind of work you never

really move out of anything. I think the kinds of questions that I asked, I still continue to ask. But I've tried to look at a wider array of public spaces and greenways and natural areas and urban parks and plazas and things like that.



HELPHAND In my book I literally begin with the Garden of Eden and end with now, with a look towards projecting into the future. To do that I have spent some time thinking about fundamental ideas about gardens and what gardens mean to people, both in the contemporary world and the ancient world. I often go back to the beginnings and origins of things. I've written about gardens in the Bible as well as my last book before *Defiant Gardens* was called *Dreaming Gardens: Landscape Architecture in the Making of Modern Israel* where virtually all of the design work is public design work and almost none is any kind of private design work. But one thing I always return to is the idea of the Garden of Eden. There's formal descriptions of the Garden of Eden and dividing the world into four quadrants and four rivers emanating out of Eden and then there's this first commentary about Eden in scripture where it says every thing was planted there that was pleasant or good to look at and good for food. So that's really one of the first commentaries or writings about gardens and about creation. It has this wonderful pairing of pleasant or good to look at aspect, and then that it's good for food; the pragmatic aspect of sustenance. They're paired together and I always come back to that, that these two things are not separate. The kind of art of the garden and artistry of the garden and its sustaining and

pragmatic aspects are not something that are disparate or in conflict with each other at all. They're part of a whole and then I also like the fact that pleasant or good to look at is mentioned first. This inspires me.

The research for the *Defiant Gardens* book began with a single photograph and I talk about this in the book. The photograph is an old photograph I found many years ago. The title is something like "Shelters with Gardens behind the French Trenches in the Great War," referring to the First World War. It shows these soldiers standing by their dugouts behind the lines and these little gardens with these little rails surrounding these very, very modest vegetable gardens. I had this on my shelf for many, many years and I wouldn't say it taunted me, but I knew it meant something important. I began collecting images.

I used to give a lecture which was kind of "everything you needed to know about garden theory in an hour" and I'd end by sharing these other gardens. I said I didn't quite have a name for them, and at the time I didn't, which were gardens in extreme and difficult circumstances. I started collecting images of them, or if I saw them myself I would take pictures of them. They were gardens, community gardens in cities, things in planting strips, things

in highway medians, things on rooftops, things where there was no soil, water or anything. But something was growing in those conditions and I forget exactly how but one day the term Defiant Gardens hit me, the kind of idea of thinking really of the garden as something that's assertive and positive and not some kind of very calm pastoral retreat, which certainly it can also be. I guess I was just really inspired by that initial picture. I started looking at gardens in wartime with the premise that -- similar to the way philosophers and psychologists and others have looked at people in the most extreme circumstances -- maybe that tells us something about the essence or the essential qualities of what it is to be a human being. I think a part of the human condition is war, so I began looking at gardens in wartime circumstances and not gardens at the home front. It was not victory gardens which were important to me and interesting but gardens literally in wartime environments created either by soldiers or civilians who were part of conflict.

Now I'm lecturing all around the country about the book and encountering rather remarkable individuals. In each of these circumstances the fact that people would first of all conceive of a garden and then, marshal the space and the materials that are necessary to create a garden, the kind of land and soil and water and plants and seeds, etc. That they would have the energy, literally often under threat of death to make a garden and then often describe it and write about it in their diaries and their memoirs -- which are what I used as the evidence for this book -- to me is in fact inspirational. It says something about people's perseverance and resilience, their resistance and how the garden could accommodate that.

We all have a friend or a relative who is nice and pleasant to be around and so on, and then in a time of crisis, they respond with depth of compassion and energy and sympathy that we never imagined that they had. These things are kind of recessive and I think gardens are like that. They're nice and they're pretty and they, they're kind of

there but in a lot of ways not taken seriously. One almost has to anthropomorphosize gardens to see their capacity to bring out traits and possibilities that we didn't imagine. A garden is always understood within its context. So if you have a small vegetable garden or just a small rose garden or ornamental garden in your back yard, it's nice and you enjoy it and your family and visitors enjoy it. You take that exact same design or same element and you place it in an inhospitable environment, either environmentally inhospitable or socially or culturally or economically, all of a sudden it stands out. Dramatically.

So the frame, if you will, of the garden really determines what it means to people. If you're working in an urban environment where there's no trees, where there's no vegetation, where it's desolate and even maybe perceived as dangerous and you see someone growing something and investing their time and energy into trying to make that place beautiful or productive, I think it inspires not just the people who make it but those who see it.

I've been inspired by soldiers in the First World War, doing this gardening in the trenches, writing home for seeds and growing things. I've been inspired perhaps most dramatically by gardeners in the World War II ghettos, where even when you talk to Holocaust historians they're amazed that these events happened.

You know these are individuals who knew they either were dying, being systematically starved or worked to death. They knew they were in the ghettos just as a way-station to extermination, and in that circumstance people still made gardens and any garden is a hopeful sign for the future. I mean, you plant something with the expectation that it's going to grow, you are reaching for something, wishing you'll have its produce or product so...in the most pessimistic time that people can do a most optimistic act to me is extraordinary.



A soldier poses in his trench garden at Ploegsteert Wood in the Ypres Salient, the scene of many horrific battles. (Photo courtesy of the Imperial War Museum.)

KUO I would still say it's the data. Because of the findings, I've paid more attention to the roles of nature in my own life and so I am becoming slowly and surely a tree advocate. But really it's the pattern of findings. What I want to do in my research is to try to make a difference. And what I'm following is the

path that promises to help me make the biggest difference. If I can find something that really works and it works in many, many different ways and important ways and for important populations, then that seems like the way to go.

McPHERSON I'm motivated by the desire to make a difference. I hope that the research that I'm doing can be used to create a greener, healthier environment for people. What we do is quantified in the benefits and the costs of trees. We hope that that will stimulate investment in urban forests and their managements. By attaching monetary value to all of the services that urban forests provide, we hope to increase appreciation of their value and greater investment in trees. I look around and I see the value of the investment that's been made in the infrastructure of our cities and our highways

and streets and roads and our sewer system and our water systems, and in our schools and hospitals and healthcare, but I don't see that same investment, that same concern about the natural environment, the green environment in our cities. While we've done a lot to engineer our communities to facilitate us getting around in our vehicles, we haven't really shown the same concern for creating an environment that puts us in contact with nature and that really maximizes all of the ecosystem services that trees, greenery and community gardens can provide.

SULLIVAN I think the first point is my own recognition that the physical environment has really profound and systematic impacts on people's lives. The kind of places that people live in or work in or the way they get to and from work, how those places are designed has real important implications for individuals in terms of how well they function and how effectively they can meet their own goals. So I guess the first motivation is the recognition that the places that we design and create for ourselves have really important impacts on our daily lives. And then within that I think that one of the most effective ways of creating supportive places for people is to make sure that when they look out their window from work or

from school or from their home, that they're looking out at some semblance of a green space. A tree and some grass or a tree and a little bit of open space or something that's green.

It's not just an amenity. I guess another way to look at this is that some look down their nose at greening as though it's all about making a place pretty. That's not an important public policy question. And my sense is it's a whole lot more than making a place pretty. It's about creating places that are supportive for people. I wanted to get carefully selected evidence that assess whether that was the case. That's been the motivation.

WESTPHAL Providing high quality places for people to live and work and play, simply. And having natural elements in the city is a part of providing those places. Obviously people who live in public housing also need roofs that don't leak and places without rodents and that kind of thing. Sometimes I feel like in this field we get a little, you know "all you need are trees, da, da, da, da" (sung to the tune All you Need Is Love by the Beatles) And obviously that's overly

simplistic. Nonetheless, just finding more and more about the ways that the trees and plants and gardens and things matter is just astounding to me. Just look at the work of Francis Kuo and Andrea Farver Taylor! The impacts on ADHD, the wonderful role that the living memorials are playing in helping people recover and heal as much as possible from the attacks on 9/11, all of these are ways in which something as simple as having a tree around or a flower around or

a garden around makes a real difference in how people are able to live. We need to tease out that information in between the subtle things that are happening and how are they happening and why are they happening. How do we foster and support people who are trying to make

I believe that community garden research is really important for the psychological and physical health of people. I felt that it was very important to understand those connections to green space and how people connected with that green space. And my main subject was community gardens but I think parks and other green spaces hold that as well. And I felt that it was important to understand those connections so we can basically improve what those connections are and expand on them and be able to

Again it's both the cause and the students. The awesome, the miraculous, a sense of greening with very little cost associated to it, it's really one of the most inspiring ways to help the world. So it's both that, plus the wonderful students and their inspiration. Those keeps us motivated...the ways in which it doesn't take a whole lot of nature and it doesn't take a very heavy dose of it to have so many different psychological benefits to individuals, to communities in terms of civility, in terms of crime, in terms of food security, in terms of psychological well being of any kind. I mean it's really a very rich resource.

Community gardeners and community

I love the people I get to meet doing community greening. I used to be more of a practitioner myself. I started a garden program at Berkeley and found that very rewarding but also I was a little bit frustrated in that most of the promotional material about gardening was all about great it is and not really about the hard work involved: the grant writing, the maintaining outreach

improvements in their own communities? I find it engaging and hope to be of service. I am a public servant, I do research within the government. And the work that we do is aimed at providing information that people can use to really build stronger communities.

reap those benefits. My research revolved around understanding the connection with community gardens and their surrounding neighborhoods. Later I got a little bit deeper with the question of what is the connection with community gardens in transitional neighborhoods. Because I'm a geographer, and in the city I was seeing a lot of population movement. I wanted to see how those green spaces, mainly community gardens were impacted with new people coming in and out of the neighborhood.

greeners don't need me to say it, but, what they're doing really matters. It makes a huge difference and it's I think knowing that what they rare doing really matters that should continue the inspiration because certainly it's not being inspired by money or grandeur or anything else. It's a very local, very low visibility thing that across the world is a sort of revolution. There are many small things that are making a big difference. If it requires sustaining each other as leaders in the greening or community gardening movement and as workers in that movement to realize that one is making a difference, then that's what we should sustain.

efforts and that kind of thing. In talking to other members of the American Community Gardening Association we realized that we were all doing the same thing. We were putting on happy faces for the grant writing and getting outside support but we were all struggling with the same issues. So it became very rewarding to start answering those problems that we were all facing.

HAMPTON

R. KAPLAN

LAWSON

NELSON

I wanted to be able to provide concrete evidence that engaging people in a greening project through gardening would actually make a better community. My hypothesis has always been healthy

communities make healthy people. I'm totally convinced that unless people are engaged themselves they remain very distant from the process and it's only when people know each other that you can really get change.

SVENDSEN

We started to institutionalize the garden registration program because we wanted to start collecting data on a larger citywide scale and the motivation for that was simply that I saw this as a social movement and that's what draws me now. I see these patterns that aren't necessarily only in response to a particular event, although they do happen in response to disturbance and events. But they happen in other cities, in other countries and they happen throughout the course of history. So it's very significant to me to try and draw out those patterns. It's a hopeful enterprise. Sure, I could plant a tree and feel good

about doing that too, but in many ways illuminating or shedding light on this incredible social innovation truly gives me a lot of joy and the people that I've met along the way, when I do field work I become inspired. You're talking with people in communities and sometimes that's citizens, sometimes it's people working within the state and sometimes it's folks in the private sector who are a little different a little on the margins. But because of that I have created this incredible space in which to dream and to think about the collective and democracy and all of these issues. So that makes me feel good.



I came to learn that stakeholders are an important issue, an important consideration in any natural resource policy or practice. And while I didn't intentionally move in that direction with my research, looking back over it in retrospect, I think what I've done is attempted to identify and address various stakeholder concerns. And so very simply I would break out stakeholders associated with urban greening as being advocates and opponents. And the advocates share my values for urban greening and there's a lot of work that has been done to sort of enable and expand what they do or want to do in their communities. But where I got hung up at times in my early work and what I think my research now addresses is those institutions, policies, power players if you will, that are opponents of urban greening. What my research has done, I think, is to better understand what the issues are that opponents believe or articulate or know and attempt to demonstrate. What are the other values that perhaps haven't been taken into consideration? The answers are often the hurdles are placed in front of urban greening or urban forestry efforts. Take business communities for example. Business communities are able to very easily tally up the cost of trees, but I don't think many business associations have a full understanding of the intangible benefits,

the non-market benefits that they gain from having a quality streetscape. Another example is transportation professionals who object to street side plantings because of safety concerns. Some of the research that I've done reveals that their safety concerns are not as extensive in urban areas as they would lead us to believe.

Some other research I'm doing is trying to understand what youth gain from being involved in urban greening projects. Through this I've reflected on my own experiences. I think the experience of nature is a fundamental human need. It is expressed in a variety of ways and it also needs to be provided in a sequence or in a variety of experiences that are suited to people at different times of their lives. So I think what drives me is the value that I have personally experienced from some really profound contacts with nature, some of them in more pristine settings, but some of them actually in urban or built settings, in part because of my experience with landscape architecture. This is something that I have come to be self aware of that I hope to provide for others. I think that they will come to realize how valuable it is, how important it is, how essential it is.



What is your most important finding for greening advocates and policy makers?

FRANCIS The question that lingered after we had done the work in New York and when I arrived here at the University of California was “how do people value the community gardens in relationship to other kinds of more traditional green spaces in cities?” You have people who are making almost what I would call an alternative park system, in counterpoint to the formal park system. But what we didn’t really understand was, how did people use and value those parks versus gardens?

So I did a little study and this has been pretty well documented I think by ACGA, of a garden that just recently disappeared. The Mondella Garden in Sacramento. It was a perfect study site because it was right across the street and almost equal in size to a historic urban park, one of the original Sacramento Sutter Parks. You had this block square, green manicured tree and grass playground, the crown jewel of the city park system, bright green on all the city maps. Across the street you had this very typical but long lived community garden. I think at that point it was already ten years old and survived probably 25 years I think until it was torn out and housing was put on top of it. We designed a little study comparing how users of both the park and the garden valued it. We also compared how non users valued these things, by asking what people who just live in the neighborhood or nearby think about these two kinds of places, though maybe they don’t actively use them. The finding that came out of that that was striking was that people, both users and non-users, valued the gardens more than the park. Even though some people didn’t use it and even though they may not have thought of it as completely accessible to them. We asked them to rate it on a series of scales, and one of the scales was what’s most beautiful, kind of the aesthetic question you know, what’s prettiest the garden or the park? And actually they rated the gardens higher than the park.

Another reason that we found that may explain

a lot of why the gardens lasted a long time is that people, non users, recognized that there was this kind of what we would call today sustainable function of the gardens; that fellow neighbors were actually caring for the environment in a way that the non-users appreciated. Even though they weren’t there every day gardening, maybe just lived across the street or walked by it, they saw that as important.

There were a bunch of other things that we looked at, but I think these were significant findings and led to me being an advocate for the idea that community gardens should become part of the permanent park and open space system of cities. That they should no longer be treated as temporary use of the land until something better comes along. But that they deserve the same recognition that historic parks and waterfronts and golf courses and tennis courts and athletic facilities and all the kinds of things that tax payers spend money on.

Generally, policy makers did not react very favorably. In the Sacramento study we interviewed the managers of the park and the people in the Parks Department as well as the gardeners, and the people involved in the garden board, even landscape architects. I don’t want to be negative about it, but in general they still see community gardens as kind of temporary, private facilities that are not deserving of park status. There are, of course, some important exceptions to that in cities like Seattle where they have taken the patch gardens and brought them into the park

... community gardens should become part of the permanent park and open space system of cities.

system. And if you pick up a map of the city you’d see the gardens colored green along with regular city parks. That reflects more of a European concept because even in Europe a lot

of the gardens, allotment gardens, at least the longer term ones, are permanent open space. But it's a tough, tough sell. But I think as concepts, like sustainability and resilience and ecological concerns, are moving to the forefront, all those kinds of things are pushing the garden higher up.

You do each study for the merits of the question that you're interested in, not with an agenda of trying to change policy one way or another, and some of the results of our studies were surprising and striking and I think argued even more strongly than I could have you know just as a landscape architect, or as a garden advocate. But I think as more research is done and as we encourage more faculty and departments of community development, sociology, landscape architecture, wherever, to adopt this as a rich kind of laboratory to do their work, the more evidence that we'll

have to make the case that the gardens are important. Ultimately it's a political decision more than a scientific one, as with anything. So the cities that have been the best, Chicago, Seattle, Boston, San Francisco to some degree, are the ones that have citywide constituencies for the gardens but also that have political leadership that recognizes their value.



HELPHAND

I think one of the things in terms of my findings or conclusions is that these are things that people already know which is often true for certain ideas that are profound; when you say them to people they reply "Ah, well I know that." Still, I think they're critical and I think that at least from examining these gardens they represent five commonplace but critical ideas about gardens. They have to do with life, home, hope, work and beauty and I will explain each of them briefly.

First life is, gardens are organic and they're alive. If you kind of follow Wilson's idea of biophilia, you understand that we have some innate affinity to the natural world and particularly an innate affinity to the aspects or elements of the natural world. They're alive, plant and animal species and they are a part of our evolutionary heritage. It's part of who we are. Gardens both *are* that and they *represent* that. So the plant world is alive but it also stands for, as a kind of symbol, life and growth and it happens at a pace that we can see. It happens at a pace that we can see it as a daily cycle or more often as a seasonal cycle. We watch the growth of things and we watch their growing and dying and harvesting depending on what's growing. So we have an empathy and understanding for that. I think it mirrors us in lots of ways and we use the words for gardens as we do for people. You know, you nurture plants and you nurture people and you watch their growth etc. So fundamentally, I think that

is the most basic idea and in places where one finds oneself at the extreme, where it's kind of anti-life either in terms of death as an extreme or anti-life forces of things growing and things reaching fruition (concrete, steel, glass), the garden means more and I think that has direct implications in terms of communities.

The second is the idea of home. This has dual aspects in terms of the garden and in terms of a community thinking about it. One aspect is we often think of the pair of house and home or house and garden because they are so intricately connected in most societies around the world and certainly in our society; they become inseparable. So your home and your garden or your home and its outdoor space, whatever it might be, whether it's a private garden or some public area that you associate with where you live, is part of one's identity in terms of what "home" represents. It's part of everything from your daily life to the most profound individual and familial and household occasions, from household work to household pleasures. And the garden is part of all of that.

Depending on where you live in the country there is more life lived out of doors than indoors. So perhaps the garden in some places is a kind of outdoor room and it takes on all many of the functions that go on inside the house, in terms of eating and socializing and working and studying etc. So on one hand, the garden

is part of one's home. The second part of making a garden is a way of making a place home. Particularly in these wartime circumstances where individuals were not at home, either they're in, literally in or near the battlefield or they've been prisoners or they're interred or they're uprooted or they're refugees or whatever it might be, in those situations which people don't want to be in.

But even in those situations where someone might not want to be there it is still the place they are and in a sense it is their home, hopefully a temporary one, but it is that and a garden then is a way of making that, that place, into a home. And people do that in a whole variety of ways. One of the most common ways they do it is with reminders of the home or homes they came from. So they will literally lay it out in the same pattern. We see that with community gardens often. Mostly we see this demonstrated in plants, but sometimes with other structures. One of the most common things that immigrants do is they bring their cultural knowledge and their horticultural knowledge and their plant knowledge to wherever they're moving as an essential part of who they are and they remake those gardens if at all possible. It seems to be like an almost universal kind of urge. I mean it is both food and foodstuff which are part of one's diet, but there's also the kind of the intimate knowledge of that.

So the second aspect is the gardens are a way of either making wherever you are home or if you are removed from the place that was your original home, making this new place home. I think that has important implications in terms of policy and communities regarding for instance the movement patterns in American culture where people are moving constantly and then on a grander scale the patterns of immigration in the United States where the garden actually can help people in terms of making new place, making the United States their home and at the same time without giving up their connections to whatever culture they're a part of. So that's kind of the second notion. I think that one is particularly important in terms of thinking of community gardens and even in policymaking and having spaces for them.

The third has to do with the idea of hope, and honestly when I began my research, that was the first thing that struck me; of course gardens are about that. I spent a lot of time reading, looking into ideas of philosophers, religious thinkers detailing what hope means to people and why it's important, and I think gardens have always both represented hope. People place their ideas of

the world in gardens and demonstrate hope through gardens. And I think we understand the very reasons for that are almost unfathomable... you put a seed into the ground and it's dark and it's tiny and it emerges eventually out of the ground and into the light and grows into something else. I mean that transformation. We may understand it. I think we do understand it scientifically, but there is a miraculous aspect to that and it is something that seems improbable, multiplied by the fact of gardens growing or existing in places often that are improbable, that are difficult or inhospitable, whether it's an impossible environment or an impossible social or cultural situation.

Often one plant counts just as much as some large garden with multiple acres of ground. That was one thing that came out of this research. The scale or time did not matter. Something very small could be equally meaningful to people as something grand. So the view of soldiers looking out towards no man's land in the First World War and seeing a tree or seeing, literally sometimes, a blade of grass; or in the Warsaw ghetto a story of a young woman who was dying who her sister sneaks out of the ghetto to come back with a single leaf. You can see something green and growing. Or it could be the view of a grand valley but the size was not critical to people. Same with time. I mean gardens do take time to grow and reach fruition but people's encounter with gardens could be very short lived. It could be sometimes even just a glimpse of something. That's the shortest experience or working something and then being removed from it. You know, literally individuals being ripped up, which was traumatic for individuals so both aspects there I think are critical. So that kind of returns to hope. I mean gardens embody that. There's a whole set of cultural association in terms of gardens, in terms of plants that invariably are signs of hope and optimism. Optimism goes with hope. You're not pessimistically hopeful. You know, you're kind of optimistically hopeful, it's redundant. Gardens and landscape architecture I'd add are optimistic acts. You plant something and you make something with either the hope that it will reach fruition, that the plants will grow and in the longer term that even if you're not there you know it is going to outlive you or that someone else will care for it and maintain it. So we do it and I think that's ultimately represents a great faith in either those who are part of the community that you're now part of and then part of that more extended community of people through time.

Next, you have some work. This was something I knew, but, was most surprising about this research;

the significance of garden work. It's not hard for me to look out in my yard and find a place to make a garden, but to find a space to grow anything in the Warsaw ghetto or on the Western Front is almost unimaginable. There's the imagining the garden and preparing for it, gaining permission, the legal aspect. It's essentially impossible to have a secret garden. So you need either some kind of passive permission of whatever forces that are kind of taking care of things or explicit permission. In a community situation you may kind of appropriate land or act as a squatter or hopefully the public body encourages something. But all those acts of gathering materials, gathering seeds, getting water, protecting plants from other individuals, harvest and so on, the pleasures and satisfaction that individuals derive from that, and I found would often report in their diaries and memoirs, that that was more critical, more significant, to them than whatever meager produce they may have gotten from something. In terms of community gardening and community greening, I think this point is fundamental.

I know when I talk to community gardeners, most community gardeners are not growing food for sustenance. At least in this country, though certainly some garden for sustenance, many enjoy the pleasures of work from both personal pleasures and then if you're doing it with others it is also a social environment where you share knowledge and you share experience and you just share the time in the garden of just the time in the garden is a different kind of time.



My recent book concludes with a description of several American soldiers and one of whom I interviewed, a man named Sergeant Carl Qualm in Iraq. It's 140 degrees during the day. It's a desert, and this guy is from North Dakota and has no knowledge or experience with the desert. He gets seeds from home and he and his colleagues are trying to grow food, as he says explicitly, just as a reminder of or as a connection to home on the one hand, and on the other hand as work that

provides some relief from the activities they were in during the day, which was largely patrolling and transporting things, literally in danger of losing their lives. Then he used the term of "coming back" during the day to engage in what he called "garden time." I just love that term. Garden time was both his respite from the war, even though the war is there and all around him, and also a reminder of his pleasures at home and his family in a different space.

We can distinguish between leisure work and toil work. Actually if you go back to the Bible in Genesis, there are two kinds of garden work that Adam engages in. Before the fall in the Garden of Eden, Adam is the steward of the garden and he's working in it but that's all kind of wonderful and pleasurable and immortal. After the fall he has to toil and farm and work and then it's labor. There is a distinction between garden labor where it's arduous and difficult and menial versus the work that you get satisfaction from. And in my research these gardens during wartime, I actually choose only to investigate situations where people at least had some semblance of free will. Not always but at least some semblance of it. Even people who were prisoners. So for example I didn't look at gardens in the concentration camps because in those instances the gardeners were slave laborers, they weren't doing something that they wanted to do. So even in the ghettos where people were obviously not there by choice, they had some degree of choice of engaging in gardening as an activity. So the work aspect I think is critical. Nelson Mandela in his autobiography talks about the garden he had at the prison on Robben Island and how when he worked in the garden was the only time he essentially felt free. So it was different. There's garden space and then again going back to the term of Sergeant Qualm there is I think a garden time. The last aspect has to do with beauty which too often is thought of as superficial. There's a paradox because of the fact that gardens are beautiful and we recognize and appreciate that, but we often don't take them seriously.

To use another kind of human analogy, you know, someone who's really gorgeous or handsome, often it's hard at least for some people to take them seriously. I think the garden in a sense is gorgeous, it's pretty, it's pleasurable. Well, that's not the serious stuff, say policymakers; that's just fluff. When in fact that beauty masks all these other profound aspects of gardens and gardening, and the beauty

itself is profound. So individuals in these horrible situations would describe and speak about not just the pleasure, but really the sustenance they got or get from the beauty of the garden. You know its colors, its forms, its patterns, its associations. That those are sustaining to people and there are many descriptions of individuals who would say that this meant more to them than let's say the food they would get from it. These might be individuals who are hungry, often starving, but yet just looking at something or that spatial experience could be that profound to these people.

So those five aspects are for me the findings from my work of the central things that gardens mean to people. These I think are fundamental of almost archetypal elements in their meaning to people. It comes down to two things. One, gardens are not a thrill, superficial, or fluff; they are fundamental to human experience, they provide something that we need. Second, it's essentially a symbiotic relationship, between us and the garden or between us and the rest of the natural world, for many people and certainly people living within urban environments. This is, if not their soul, often their primary interaction with the natural world.

KUO

For me it's not any one finding, it's the range of amazing diversity, the complete range of findings. All of which point in the same direction, which is that nature is a key component of a healthy human habitat. You see this in all kinds of ways. You see it in terms of individual functioning. People being able to think better. People managing conflicts better and being less aggressive. People handling the most important issues in their lives, the most important goals and challenges in their lives in a more proactive way. Children able to delay gratification. Children able to control impulses. And those are objective measures. The diversity, the range of findings say to me, okay, nature is not just something that has one particular interesting affect on the human psyche. It seems to make us our better selves. We have the wherewithal to be closer, to behave closer to ways we want to behave. Both in terms of cognitive functioning and social functioning, sort of what we call, what we psychologists call self regulation or self management. So we are better

selves when we have nature and that's what all of our findings point to.

The other thing, the other sort of general theme which fits under this is that neighborhoods seems to function better if they have green space. You have people using outdoor spaces, getting to know each other, forming acquaintanceships or more importantly, social support networks. This is incredibly important in low income neighborhoods where people need as much support as they can get. We see lower crime, less graffiti, less noise; all around a healthier neighborhood dynamic. A place where instead of no man's lands that are occupied by trash and strangers and gang activity, you have people who own the outdoor spaces in their neighborhoods and live in them and use them and know each other and feel safe and are safe. I'm not somehow extrapolating from the individual findings to what I think happens at the neighborhood level. I'm actually telling you about neighborhood level findings. Individuals and neighborhoods function better when they have green space.

McPHERSON

I'd say the most important finding is that the benefits of trees in most cases far outweigh the costs. We've studied probably 15 different cities around the country, and outside the United States as well, from Lisbon, Portugal, New York City, San Francisco, to smaller cities like Fort Collins, Charleston, Charlotte and Glendale, Arizona and Santa Monica, California. Add up all the benefits that trees provide, whether it be energy savings, air quality improvement, reduced storm water runoff, carbon sequestration, increased property values, improved aesthetics. Then subtract all of the costs associated with managing trees, not just planting and pruning and removing dead trees, but costs associated with, for example, sidewalks that the roots of trees heave up and money spent in cleaning up after storms where trees have fallen down and blocked streets. And all those other costs. The benefits will be two to three times greater than the costs. For every dollar spent on managing and caring for trees, residents of cities received two to three dollars or as much as four dollars back in return. So trees pay for themselves. They put money in our pocketbooks really, because of all of the services that they provide. Although no one has paid a tree to provide these services, they are

working 24 hours a day, seven days a week to protect us from the elements, to clean the air we breathe and clean our water, to nurture us psychologically, spiritually and improve our quality of life. I think that sometimes we don't value trees because we don't pay for these services. So I think our most important finding is that you can attach a value to these services and that in most cases, trees pay for themselves.

SULLIVAN

The most important findings are that having everyday contact with green spaces has pervasive and profoundly positive impacts on people's lives. So that's the most important thing. Green spaces have really important consequences for people's lives and it's a matter of public policy that we find ways to do this, to make sure that there's nature at every doorstep.

Across the lifespan from young children to teenagers to adults, to older adults, the work that we've done shows that having everyday contact with green spaces has implications across the life span. So it's not just for a select group of people and it looks like it's not just for a select class of people either, poor people or wealthy people. There's enough evidence now to suggest that it extends across cultures.

WESTPHAL

Through doing interviews with people who had worked on community gardens and doing interviews on their block, and finding some results that really tightly point to the interaction between people's sense of self and sense of neighborhood, sense of worth and the environment in which they live I found that changing the environment can be a part of changing someone's sense of self. It's the kind of thing that it gets discussed in essays. President Johnson, in his Great Society speech in 1964, spoke about, and I am paraphrasing, when people live in an ugly environment that they feel demeaned by it. But my research actually showed that this is in fact the case, that changing the environment can be a part of changing someone's sense of self and their ability to feel like they're a nice and decent human being. And the more of us that can remember that we are and can be nice and decent, the better.

Roger Ulrich quotes I think a Swedish politician and says that "data without emotion are dust." I love that line. I wish I heard it more from politicians here in the USA. But feeling like we can provide that emotion, and we can also be providing the information for policy makers, the things that healthy urban forest can do, from cleaning the air to helping retain water to phytoremediation, to providing a strong sense of place, an attachment to a community, to service learning opportunities. I think we can also play a real role in landscape policies, on policy trying to deal with unmanaged development and growth, sometimes called sprawl. Not all development is bad, but how do you do it well? How do we build neighborhoods that can provide as many of these benefits as possible and how do you move that into land use and zoning issues.

Researchers bring to the table, when dealing with people who make urban policy, the idea that cities are not ecological dead zones. Cities are not ecological dead zones and a lot of conservation biologists and others think of them that way, that ecology ends at the urban boundary. But it doesn't. So a lot of the work that we do and I do shows that things happen here. Build a rooftop on Chicago City Hall and native insects and birds find it and lo and behold you've got a habitat up there. It used to be a tar roof. Getting that word out that ecology does happen in cities might sound really basic to you and to me but it's really an important word to get out.

HAMPTON

I wanted to look at residents that *didn't* use the community garden and see what their perceptions of the garden were, because I had been involved in a community garden and everyone in the community garden was advocating for community greening or very excited about having a community garden. So I wanted to see if that kind of idea held true to residents that didn't use the garden. I surveyed residents who stated that they had not used the garden and some of them had not even heard about the garden. I wanted to see if they thought that community gardening was a good use of their neighborhood space. And overwhelmingly, 94.6% was the percentage, said that they thought the community gardens were a good use of city space and they felt very positively about community garden in their neighborhood. However I did get

5.4% that didn't feel that it was positive.

That would probably be the most important result, some hard facts about that, hard data. I also asked residents if they were recruited by community garden groups. I kind of knew some of the issues that community gardeners faced; one of them was to get people to work, volunteer work for them and in that space. So I asked those residents that weren't involved in the community garden before, what kind of recruitment method would they like. I have data on that. Lastly, I took two neighborhoods in Chicago that were in the gentrification process. One was a little bit more advanced. One was still experiencing gentrification. I asked them how gentrification has impacted their garden and what they thought, if it was positive or negative. The answers were not completely negative, and it wasn't completely negative for the gardeners, which I thought that was interesting.

Regarding recruiting, around 30% preferred to have flyers around the community. But they also, more than I thought, would really love to be invited to participate by e-mail. Newspaper announcements were also something they were really excited about.

I did get some interesting thoughts about "inviting signs" in the garden. I got some negative responses, people saying that they weren't feeling welcomed to go into the garden because the signs would say "This is a sensing garden, it's not for doing this or that," basically ruling things out. And that seems to deter them from volunteering.



R. KAPLAN

The most important findings are these very broad statements regarding the many roles that nearby nature plays in human well being. So it's important both in terms of the range of benefits and how little it takes. But it's the same kind of theme. Even a view from a window, having some nature in the view from the window has been shown to make huge difference in terms of all kinds of settings; residential, prisons. I mean some of the prison studies on the view from the window are just colossal, as well as the work on hospital environment and so forth. I am reminded of the work with cancer recovery where patients could choose anything they wanted for their 20 minutes, 3 times a week, and the vast majority chose either working in their garden or neighborhood walks. So it's a small dose and the restorative benefits of course are enormous. So a small dose of "green" can make a big difference and make a variety of big differences.

I think cities are more desirable if there's nature. Civility's enhanced, all of these wonderful features emerge, and many of these organizations, and especially the grants they're writing, are about underserved groups. So the research that has shown these benefits to prisoners, to building community, to increasing a sense of pride, things like that, all speak directly to what activists want their organizations to foster. One of my favorite

less visible pieces of this is the New York City Public Housing Authority flower/gardening competition. It's been going on for, 46 years by now. I think it's just awesome. For a long time it didn't permit any edibles to be grown. And the pride and the organization that it fostered, people on the high floors organizing people on lower floors to protect the lawns and things like that. Inspiring.

LAWSON

We need to really pay attention to whether we're talking short term or long term goals for the greening effort. My research showed that gardeners are very good at taking opportunities of a vacant lot and making something out of it. But if they want that lot or that garden to stay an ongoing garden, there needs to be more attention to protecting that site and validating that site in the public sphere. And so for both gardening advocates and policy makers I'd say we need to commit to this long term perspective of what greening is doing. My historical research has shown that there's been a persistence of this idea, an ongoing demand for community gardening and community greening, and it's a little bit episodic according to what the social issues are at the time. It's been going on as long as we've been an urbanized country. That leads me to the point that, then, we

should make this an ongoing resource. This resource evolved according to community needs, but then it is also along the lines of a park or a playground in terms of providing some fundamental resources to communities.

People don't realize the amount of work that goes into making these gardens. We like to show the happy pictures, the pretty pictures, the finished garden. We are less expressive of all of the resources that have to go into making a garden at a really tangible level; we clean the soil, fencing, things that are expensive for a community to actually implement but that aren't really given value as community improvements. At the garden that I used to run, we put tens of thousands of dollars in it in the end to make it into a garden, yet we have a five year renewable lease. You would never develop a park that way.

So we need to acknowledge what those costs are and articulate what the benefits are -- that we can actually use research to show greening's psychological benefits, crime prevention benefits and economic benefits, so that there's real tangibility that can go to policy makers. Otherwise people just like the idea but they don't really realize that it needs to be supported to continue.

NELSON

Well I'm absolutely convinced that you have to get the community engaged in order to get long-term protection of green spaces. Otherwise it just comes from the top and it has no meaning and people really have to experience that themselves. I have so many human stories of people who never had a seed in their hand before, and then they produced 200 pounds of potatoes. I'm convinced that unless we really get people involved, the conversation about gardens or green space remains very esoteric and is something that belongs to somebody else.

SVENDSEN

It's probably the need for unplanned space. The need for unplanned space is probably most important. This need after a disturbance, whether it's in the short term, or the long term, there is a need to reorganize space so that people can create, gain control, leave a legacy, share and teach



with others. It's very important, fundamental I think to what holds a society together. Sure gardens produce food and shelter and safety, but what knits it together are these other things and I think that does happen in a physical space, an unplanned space. And it also happens in dialogue as well. You can get this unplanned space still, within a garden, and that's what's so wonderful about community gardens. As these gardens evolved, their openness to changing what they do is really the mark of whether they'll survive or not. And then also, valuing literally unplanned space and really talking about the need in these communities. If you look at a map of New York City and see where most of the community stewardship is, it's not happening so much in the places that are built out but it's happening in areas where there's still space at the margins. This is a very important finding.

Another is that communities need to remain

vigilant because the commons, if you will, that open up after a disturbance or after an event that motivates or creates this kind of activity, this kind of green space, eventually begin to diminish. We saw this in the Living Memorial project where there was a lot of good will immediately after September 11 in the development of the Living Memorials and a lot of hopes. People were saying all the wonderful things that would happen on this little patch of their memorial site. And indeed those things happened, that's not we're questioning in the research but we're questioning how long that lasts, and what it takes. Sometimes it happens at a certain scale. So it may work on the neighborhood level but then, that land is sold for a condo development or if something else happens and we've seen that already in the case of a couple memorials, and we certainly see that all the time in the garden movement. So it's this idea, this notion that there's these opportunities that open up but we have to remain pretty vigilant in terms of making sure that they remain open in an unplanned space.

are full of a lot of good technologies but lacking social innovations or the institutional innovations. I think embedded in a community garden is an institutional organizational structure that could be pulled out and studied and replicated in a variety of different ways.



I find that I am increasingly skeptical of technology and urban design to save the day. I know that's not popular and it's not hip, but I feel that our disciplines

WOLF

The findings that I've generated and others have that I think are very valuable for advocates are the economic benefits. Be it the environmental services or what I'm calling human services or psychosocial services. Being able to put a dollar value on those is important. Though kind of contorted at times in terms of method, it is a way of moving the message forward. But I will say that what underpins that and what is really important is that the message be generated by valid, credible science. That's absolutely necessary for this to move into where

advocates would like to place it. The other is the format of the message. I've worked very hard to create concise, well produced summaries of the results. And those results, those summaries are based on peer reviewed science but nonetheless they are in a format that is very portable and so an advocate, a citizen advocate or a local advocate can take that information and use it most effectively. I was told once by a planter that if you're talking to an elected official or presenting information to an elected official, if you give them a paper that has a staple in it, they won't read it.



How might the results of your work be used to advocate for community greening?

FRANCIS

When Mayor Giuliani was trying to sell out the gardens in New York City, these arguments were being made and there was lots of research evidence being put forward about the economic benefits and the land value benefits. My dream would be to see the gardens colored green on city maps. To be recognized as a legitimate open space type included in a parks and recreation brochure or plan. If you look at the City of Ithaca or the City of Davis, you probably see the community gardens included. But if you look at a lot of the American cities they probably aren't. I know Seattle has been the real leader with the pea patch gardens they've incorporated. Mayor Daly in Chicago has been a big advocate for them. Urban greening is kind of his legacy and city trees and gardens and new parks and things. Boston early on was a real leader doing that and I think some of the gardens, I think in all these cities if you go there you will see a certain number of gardens that have moved into the ownership of the parks department. L.A. hasn't, you know they just fought their big battle over that. But the Mayor there is talking a big agenda about greening. And the same thing with the Mayor in San Francisco. So it's becoming a little more mainstream I think. I think the timing is good to start to be a little more proactive.

KUO

The policy makers themselves have spoken on this, though as a scientist I might be a little more hesitant to say ... "and therefore we need to green everything we can." The policy makers have seen this and I think they find the results sufficiently compelling, and the kinds of outcomes that we're finding sufficiently important, that they're ready to go ahead and make changes. Policy makers have really taken these findings and run with them. In Chicago, the city embarked on the largest tree planting, greening effort in city history on the basis of these findings, according to the Chicago Tribune. Similarly, the U.S. Conference of Mayors adopted an urban forestry resolution and I think two or three of the five or six justifications for the resolution are based on my labs findings. That was really exciting because I grew up in an academic family and we used to get Scientific American. And I always thought, wow, you know the pinnacle of success would be to have something in Scientific American where it could actually reach policy makers. I haven't actually hit Scientific American yet but I have begun to reach policy makers.



McPHERSON

Most every community has urban forest resources. I think that the research and the tools we provided, for example, in the i-Tree program, which is an urban forest assessment and evaluation computer program, that can be used by any community to fairly rapidly determine what the street and park tree resource is in their community, as well as the value of services that those trees are providing on an annual basis. And also what's needed in terms of management. How many trees are dead and should be taken down? How many vacant planting sites are there that need trees? How many trees need to be pruned to improve their health or treated for pests or disease? It provides us a way to go out and rapidly sample tree volunteers to identify trees and sample trees and then we can use

that information in our community to identify what are the key things we need to focus on to improve the health of our community forests. And how do we move forward to address the issues that are most relevant in our community? Whether it be a need for new planting, or the need to protect and care for our old mature trees that may be reaching the end of their life span. Or it may be the need to enhance and rehabilitate areas of the city that don't have trees. So I think that we can use the research that we've developed to advocate for resources because we can show the value of trees and use those resources to better understand the trees in our community.

FRANCIS

If the work needs to be as broadly disseminated as possible, then that's one of the reasons I'm so delighted to be talking with you today. Because as many citizens as possible need to know about the findings so that they can use them in their local communities to talk to their local zoning boards, or zoning review committees to advocate for all kinds of greening on all kinds of scales in their communities. Citizens need to know about the research. And then students need to know about it. The students in Landscape Architecture, and Architecture and Urban Planning and the students that are engaged in careers that would take them towards policy, especially at the municipal or county level, need to know about this work. So making it accessible to university students and faculty members is another important way to do that.

But I don't think there is one way to do this, an optimal way. What we need is a whole host of ways. So the answer of course is to have a multitudinal approach to get the message out. Then we produce press releases that the press can take advantage of and write articles about. Then we write really compelling and carefully written scientific journal articles so the scientific community understands this and recognizes the work, then we go to conferences and talk about this so that other scholars have access to it. Then we have web pages that allow community activists and other people to access the findings in a fashion that normal human beings can understand so you don't need a Masters Degree or a Ph.D. to understand the findings. I think that's really critical too. There can't be one approach. There needs to be a dozen approaches or so in an effort to reach all the various audiences that we need to reach.

It takes many different kinds of people to change the way society does something. And right now we're in a trend where we're not paying as much attention to the implications of building green communities as we need to. It takes scientists to help measure and understand and describe implications. But if it was just the scientists who did the work, we would go absolutely nowhere. We desperately need the energy and the creativity and the commitment and passion of advocates, people that live in communities or garden in cities to take this information, to make it accessible to policy makers, to describe their own desire and commitment towards having a green community. And to be articulate about the reasons why greenness has impacts on communities that policy makers should certainly care about.

WESTPHAL

Doing social science research is an area where it's actually kind of tricky to trace the application. A lot of what we're doing is coming up with new information or ideas or even new questions to ask that change how people think. We are really starting to look at the empowerment outcomes and that's one where I can only hope that the greening research is having an impact. I went into the research because I was hearing lots of practitioners talk about how empowering it is when people come out and come together and they plant the trees or they plant the garden. I found that in some cases, yes, it can have modest empowerment impacts but it can also be disempowering. When you've got the local project organizers that are acting more as dictators, it's not likely to be empowering.

The empowerment happens based on who the local practitioner is and what they are empowering. They're already empowered because they've gotten into programs, they've found the resources, they're making this project happen. But are they then acting as an empowering person in their neighborhood or not? And that matters a lot for what the overall outcomes of a project are.

One thing I would love to happen is have urban forestry and community gardening come together a bit more. They just kind of don't play together. It would be nice if that changed.

HAMPTON

When I was initially doing this research, I did the literature review and went over what was out there, and what was missing for me was some quantitative data that shows that people do like green space, that they're happy with it, that they think it's a good use of city space, and that's what ultimately I tried to accomplish. City and governmental policies need that

hard data to back things up and I would hope that this could be part of that effort as an argument.

I think Kuo and Sullivan have affected some policy with the public housing. They were even asked to do something for the Olympics in the Northwest in terms of some policy implications of greening.

The importance of nearby nature and community greening has to be a high priority regardless of income. Policy is not just federal policy, there's a lot of local planning policy that impacts that, urban policy. We've done a fair amount of work on sub divisions. And those require policy. They don't happen if you don't have some incentive, some way to encourage developers to do it, because it's a loss to have fewer units. They're actually permitted to have more units on the same amount of land by not building on some of those buildable areas. So things like that are incentives that policymakers can incorporate in a lot of things. If you think about any public housing, any kind of urban housing is required to have some green. And more so the higher it goes, and possibly some gardening plots that people can have if they want to.

Many countries have done way better than we have, and I think it's a great thing to look at. The Dutch have done incredible types of things. Access to nearby nature for many more urban people. It's all urban.



LAWSON

My hope is that planning and landscape architecture can actually influence city agencies, that the policymakers will acknowledge and recognize gardening for everything that it's doing in terms of community development and its social aspects, its environmental aspects and take it on as a valid land use; incorporate it into master planning, incorporate it into zoning and to various other ways that we develop cities and communities, so that it's not left off.

However, in the stories that you hear, it's the building of the garden and the struggle that really keeps that community, a lot of communities, together and really gives them the passion to make this thing go forward. The research that we've been doing in Seattle is a really good example of how a city can support gardening but still have a strong community aspect. They have the small grants program where community groups, which don't have to be organized into a non profit organization, can compete for funds to do various improvements. A lot of those are going towards community gardening and greening. From everyone that we spoke with, they were getting community resources, they were getting validation from the Parks Department and from the city and also they were the ones in control of where it was going. But the big question then becomes, is it equitable? Do all community groups have the same network that can get them into grant writing and into this kind of process? And I think that's where groups like Pea Patch come into play. They can identify groups that may need a little more assistance in terms of getting the ball rolling. If you look at a lot of the successful gardens in Seattle, they had a social capacity already. They had lawyers and various other people involved

in the gardening effort. And so it's a bit different for gardens that are for recent immigrants that don't that have those kinds of social networks or understand how the system works. And so then you do need a group like Pea Patch and friends of Pea Patch to also be advocates.

Hopefully we will make the policy makers understand that it's not just planting a tree and maybe reducing greenhouse gases, but that there are multiple outcomes that can come from greening, from increasing people's food security, to increasing nutrition and physical activity, to making people more aware of public health issues like issues of waste water, soil contamination and soil health, climate change. I think one of the things we have to really worry about is, yes, we can do these neat little projects but you have to ask yourself "how in the world are we going to sustain them?" What are the governance mechanisms that we're going to use? And so I think unless you have local people really understanding what ecology is, I don't think they're sustainable. It is in gardening that you really can process a lot of the essential ecological processes. For example, one key one is balance. I think you learn a lot about the importance of diversity and the importance of balance. We started gardens in this high risk area last March and people told us, "you can't have gardens here, they won't last two days." But we engaged the community and the gardens are still there. They haven't been destroyed, because the community owns them. When we get supplies and we go and we plant trees on a boulevard, and then somebody comes along and hacks up the bark

or hacks one down, or jumps up and breaks a branch, then we are sad or angered. But I think it tells us that until we get the community engaged in the process, those efforts that are top down are always at risk.



SVENDSEN

But what I've observed in my short time is that people and organizations have used the beginnings of what we've done here, or what I've done in my own research, to kind of bolster what they do as a community development tool. To suggest that urban greening is a pretty good strategy to enter into this realm of sustainable development, of finding ways to balance things economically, environmentally and socially. Again that goes back to the notion that this could be a model, a framework, an institutional framework or organizational framework that could be replicated in other places. I think that people have also appreciated the fact that we have listed what they've done right in this community development piece but also knitted it together with other types of urban greening. Because, for so long, gardeners stick with gardeners, friends of

groups stick with friends of groups. What we're doing on the waterfront is totally different than gardening, but a lot of what we've tried to do with an ecological approach is to transcend space "types" and knit together these kind of seemingly fragmented urban projects. We've seen that a lot of networks have come out of what we've been doing, like the urban ecology collaborative. Certainly ACGA has been around forever, it's such a great organization, but you see a lot of these other network groups popping up too. It's great.



WOLF

The work that I do I consider to be civic science. And that is science that is directed to issues that are important to society. It tends to be applied, and within it there is an effort and intent to communicate with general audiences as well as peer scientific audiences. I'm really interested in what I do, and the results of what I do, being carried into decision making situations. Often advocates are the local champions, they are the people who take the science, who take the results and place it before the people who are making decisions about policy and programs in local communities. So to the extent that I can, those relationships are really important to me. I want to support local advocates in whatever way possible and then also to communicate the science results in a way that can fit or can generate policy change. That policy change is so important because I think urban greening in many places and through much of time has been seen as sort of the activity of leftover city space. What we want to do is to make urban greening a systematic, comprehensive, component of urban planning and urban functions. Science is so important. It's not the only role but it plays an important role in helping that to happen.

There are tiers, if you will, of outreach and technology transfer, as some agencies call it. So the first tier are the products that I generate. Be it the scientific articles or professional publications, and the fact sheets, the summaries. Often I'm contacted by organizations that have pulled down the fact sheets from the web, and they include them in their own newsletters or their own local publications. So the information then takes on local relevance. Often the research is done in situations that are typical of many cities. So, say if someone in Boston contacts me and wants to put the information in the newsletter, it's probably very relevant there even though we didn't conduct the study directly in a Boston community.



How can the results of your research be used to influence policy?

FRANCIS

This is maybe a little more critical of the current state of the community gardening movement --I think that to really protect themselves from the threat of displacement, that they need to enlarge how they view the gardens beyond just growing things. When I work with a gardening group I am often asked "what should be in our design program?" I always strongly encourage them to develop a strong ecological function to the garden and to actually designate part of it to a pond or to an orchard or to plants that have ecological functions beyond what you normally see in gardens. Because I think it makes that case, it makes that link that the gardens are more than just five people growing vegetables. And it communicates to the audience, the non users, that something else is going on here. If you go to England to the urban farms I've visited, they're incredible. They have wildlife ponds and they have cows and chickens, they produce eggs and they have cafes that employ people, their reach is much wider than a lot of gardens. Now not every garden can do that, but I think that's one way that they can establish themselves when a threat comes later on to move. They can say "hey, this is an important part of the habitat of this community and this can't be bulldozed and moved over that easily."

The other advice I often give more as a landscape architect to a new garden group that addresses this is that whenever you do something, try and make it permanent and make it beautiful and make it lasting. If you're putting up that fence and gate, do something that looks as good as what you would put in the city park if you can. Because when the time comes to bring the bulldozer, they're less

likely to pick you than somebody else that seems more temporary. Not to say they have to be over designed, but certain elements in the garden can be used to send the message that "we're here to stay."

More recently one of the things that I've become interested in is what I call mixed life places, places that really attract different kinds of people, attract some different cultures, different genders. It's actually a kind of a critique of the movement now in planning for mixed use, which is to try to put mixed uses into the urban environment that create a kind of diversity, but a lot of it is more a real estate concept to put Starbucks under the expensive houses for the young professionals and it misses the point of what I think public spaces can provide in terms of inclusive places. Enlarging the agenda, looking at it across the neighborhood, across the city and having some diversity in types of gardens, is a healthy thing to do.

I think policy makers see gardens as human places, but in a political sense, they seem to ask "how many people are there and what kind of fuss are they going to make if we take away their land?" I think that the movement has grown up to a point where it can take itself even more seriously and to contribute even in a larger way to the overall urban environment, beyond just places for individuals to have a plot so they can grow vegetables. That's the stereotype, and I think gardens have reached beyond that and they need to take that opportunity seriously. That probably means doing things that may feel uncomfortable to some folks, maybe working more with professional landscape architects, maybe going to other kinds of forms of fund raising to get the money to pay for that nice gate, talking to the lumber company down the street and saying "we've got this great design from a landscape architect, can you provide the materials if we build it?" In general I think that they should take this kind of public responsibility of giving back to the environment more seriously than what they've done in the past.



HELPHAND

Policy is influenced in a whole variety of ways. First of all you have to convince people that whatever you want to do is important, that it's something that people need or desire and that it's worth spending time, energy, money, resources, etc. For me, talking to people about what gardens mean is a fundamental aspect of that. I do a lot of lecturing to community groups, botanic gardens and garden clubs, and arts groups what I find is that I am able to articulate ideas about how other people feel about gardens but they can't express. There's an aspect of that, that gardeners are often passionate about the activity and about their gardens, but can't always express why this is important to them. So I think the first part of policy is really explaining and having people testify to that, to provide evidence and humanize it and connect it to the actual individuals.

When there is a story about an individual or about a group of people and what they've done and why they've done it and what their accomplishment is and how they continued to engage in something and

there are stories that inspire us and the stories where of course where someone goes through some period of hardship and difficulty, these stories inspire us more than those where we hear "gee, it was easy- I just went out and bought one."

So-called Defiant Gardens show that the individuals or the citizens in a community are willing to invest themselves in whatever that place is or invest themselves in that community. That willingness to do that is often without public resources, without public encouragement. It represents a great expenditure of initiative and ambition and imagination. And I think also often courage.



KUO

We work with a PR firm to develop some nice, easily digestible, attractive color flyers that show our findings. Those seem to go like hotcakes and it seems like those are effective in reaching a wide variety of policy makers.

I do want to mention it's not just in Chicago that our work has had an impact. The Mayor of San Francisco has actually cited our work. Providence, Rhode Island has made a lot of changes to their public housing on the basis of our findings. And like I said, the US Conference of Mayors. I've also had inquiries from people in Wales, Chile, the Caribbean and Australia.

I'm working with some folks in DC to develop specific greening recommendations and then to tie those to particular findings. So for instance, we're saying in a healthier DC, schools are green, and then we'll talk about what does a green school look like and give examples. We'll talk about some of the findings that relate, such as reduced ADHD symptoms, better concentration, more ability for children to control their impulses in the classroom, perhaps more creative

play on the playgrounds, and more pro-social kinds of behavior on the playground. My work has to do specifically with neighborhood green space. I can't say on the basis of our work that parks necessarily do that much for neighborhood dynamics. What I see is that the area right outside your home really matters. Greening definitely has to happen where people live and not just around where they live.

I thought it would be incredibly difficult to convince policymakers, but I find that policy makers are maybe in some ways even easier to reach than scientists. Maybe sometimes what they're trying to do is just to get reelected, but they do have commitments. And if we can tie community greening efforts to those kinds of commitments, to the kinds of outcomes that policy makers care about, that's really what's key here. You tie community greening to the outcomes that the policymakers care about. Then there will be funding and there will be space and there will be resources for community greening.

McPHERSON

In the past trees have been viewed as kind of an amenity, as a luxury, an attractive kind of part of the landscape. But their functionality has never really been fully appreciated. Now air quality regulators, strong water management regulators, people involved in the issues of global climate change, all are beginning to see that the urban forest can play a role in improving our air, in improving the quality of our water, and protecting our climate. That's really a result of us being able to quantify the benefits that trees provide in terms of ozone uptake in kilograms per tree per year. Or energy savings in terms of kilowatts of air conditioning that we don't have to have. And then the pounds of carbon dioxide that are no longer emitted from coal burning power plant, because we don't need that air conditioning, because we have a tree on the west side of our home that is cooling the structure. These ideas connect with policy makers.



WESTPHAL

Doing research is a two way thing. Research is the most valuable to us and to the field when it's done in partnership with practitioners, the volunteers, the folks out there on the ground and so call us, write us, talk to us, come up to us after presentations at meetings. You know we're looking for the ways to understand what the issues and problems are that people are facing so that we're targeting our research to the right things.

SULLIVAN

We must first recognize that policymakers aren't going to take the time to read a beautifully written article in the Journal of Environmental Psychology or Environment Behavior. You've got to write that off immediately. Those findings that are in those documents are completely inaccessible to policy makers. Even if they know about them they won't take the time to read something like that. It's incumbent upon us to translate that information into material that's vivid and compelling, and to produce one page documents or short press releases that tell the story and convey the findings and then provide a citation for anybody that wants the more thoughtful scientific piece.

But the first and most important thing is to get this information in the hands of citizens. Citizens and advocates are really a crucial piece, it's really useful when citizens bring this information to their multiple city council people for instance and say "look at these findings, we need to do something to encourage these kinds of opportunities or results in our community." And they've got a one page statement or a short press release thing that they can put on the table, especially if it's graphically interesting. I think that helps a great deal. This kind of work is profoundly satisfying. There's a feeling, there's a sense of urgency about it at the same time. On the one hand it's, it feels really good to make contributions. On the other hand I feel a sense of urgency about making sure we get this information out and that it's accessible and that it has an opportunity to have impacts on local places.

HAMPTON

I think one reason that greening is suggested especially in urban areas, is that it is looked at by people as a thing that can be useful, but also not so useful when you pack so many people in one area. A lot times its housing versus greening and usually there's nothing on this argument for the greening side besides psychological benefits. I think the greening community needs to really get behind more research and once we have those data, then we can say statistically, okay, this green space will do these things according to statistics or some other model.

R. KAPLAN

What is needed is more demonstration of the ways in which it all is working and can be done, especially with respect to addressing populations of underserved groups. Both with respect to the variety of well being issues, different skills that people acquire in terms of gardening skills, employability, people skills from working with other people, nutrition aspects, all the ways in which greening leads to people staying out of trouble, having more constructive purposes. All of these interrelated benefits with respect to the various kinds of context in which the greening happens. From active involvement in community gardens to the availability of the view from the window which maybe passive in terms of one's not being active in that environment but one is psychology engaged, cognitively engaged. The more substance there is that's empirically based, the more convincing it is to policy makers who care about numbers. The pretty pictures of people enjoying it are essential, they're terribly important, but they're not sufficient. And the empirical stuff is not sufficient without the pretty pictures. The direction of research really has make greening much more visible.

SVENDSEN

We help cities by looking at open space and urban forestry issues in terms of what is possible. What sort of benefits can the resource in the urban context provide? How does that relate to changes in the climate and carbon and these kind of issues? But we also help people understand what's likely preferable. In many cases things like where you can plant trees, or where you can't or shouldn't, and how one might engage in management of those trees on a larger scale, a broader, regional scale. That's the basis for formulating policies that to me are central. We are starting to see a lot of coalitions, cities to cities joining up, addressing issues of greenhouse gases, and maybe one day related to management of the resources as well.

A lot of the research at the moment is about greening in the broader sense. We're exploring ways of trying to fine-tune the reasonable person model (RPM) to show its applicability in all directions. We've just written a piece for Journal of Environmental Psychology, their agenda for the 21st century or whatever, that tries to show the way RPM applies across the board, how collaboration is essential to get anywhere with any of these areas where no one field or group really has their hand in it all. The paper doesn't say this, but we see that perhaps the likelihood of a new research being used is greater if you have multiple parties involved in it.

NELSON

I'd like to see more work on governance. Should greening activities be run exclusively as part of a recreation department in a city? Or should they be organized by a series of local people? I think we need a research question on what are the most effective models to sustain greening.

WOLF

Myself and other scientists, we do the science, to various degrees we share the results in various ways. But frankly, we have little idea of how that science works its way into and influences policy. So that is a project that I'm working on now using urban forestry as the venue. We are attempting to understand how science moves through the social networks of local communities, and indeed moves its way into policy and practice. And it's very complex, not surprisingly. We're basing this, in part, on theories and ideas of innovation diffusion, how new ideas move through society and then become adopted by individuals and organizations.

What I see and hear happening is the research is picked up by local championship. And the champions are people who are politically well placed and very astute, and they carry the message. Again this is just my hunch, the science doesn't carry itself. It's the messenger that carries the science to the place or people that will make it become institutionalized in a community. There are within communities, again borrowing from the literature of innovation diffusion,

early adopters. There are people who say “ah ha!”, they get it, they know that the research or the science resonates very much with them, with their own personal experiences. So they take it into their message. They’re the connectors in a community. I’ve had the pleasure through invitations to go to communities and present my research. I’ve met a lot of connectors. They are dynamic people, they assimilate a lot of information, they find the synergy within the information from various sources. And then they just position themselves very well to carry that to decision makers.

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What are the important questions and research approaches for future community greening research?

NELSON

One of the things that I think has not been explored enough is the question of children and youth in the gardens. When we were looking at them, most of the gardens tended to exclude children and youth directly. I mean they were encouraged to come and use it and hang out sometimes, but generally they were adult places. So I think still think there needs to be some research on how to make the gardens more inclusive. Maybe for other kinds of groups as well, like recent immigrant groups. Sacramento has this tradition now of Ming and Mung and Asian immigrants who take over any piece of land that they can find and grow vegetables. That’s kind of a separate movement from what’s going on in the conventional community gardens.

Second, a big issue today that I think is part of important research questions for community gardens is this sustainable food, food systems and healthy food area. I have a Ph.D. student in geography who’s working on her dissertation on looking at urban agriculture in Alameda County down in the Bay Area. She has included community gardens as urban agriculture. She’s trying to get a sense of how community gardening fits into any of the other kinds of farming efforts that are going on. It raises some interesting questions about you go about doing that kind of research. Are they, you know are they apples and oranges? Or are they related? Are they different? If so, how?

Third, I think a paramount issue is still this question of permanency. Research focused on that, looking at success stories or best practices where people have dealt with permanence well. Research still needs to be done on that question. And if I think of ACGA as an organization were to take on one thing that it was going to do from a research standpoint every year, it would be that.

Fourth, one thing that is still always an issue is sense of place. When you really talk to people about why they garden and what they do in the gardens, it’s about place, it’s about a relationship with a place, it’s about a relationship with plants, it’s about a relationship with other people. That is a quality I think that we want to have throughout the city in a variety of ways, and that’s one of the areas the gardens contribute something more than designed traditional open spaces.

Finally, what if each ACGA board member, who represent different cities, let’s say half a dozen cities, picked their best success story and went out and got some money to do a really nice book of color photographs of success stories and made enough copies that you could give one to every city council member in those cities and make it available. Those kinds of things do make a difference.



HELPHAND

So in terms of those extreme circumstances in which people garden, there's more to be researched. I'm a landscape historian, so I think that the study of history is invaluable. History can be used as leverage. We used to do this greening and gardening, how come we stopped doing it? One hundred years ago there were gardens across America, particularly in cities. Now we're talking let's have a school gardening movement. Well if you tell people "we used to do that" and show them how it worked and what its implications were and why we stopped doing and why it started, why we stopped doing it, it helps legitimacy and force for something. We need more historical greening research. Laura Lawson's book was a great start, but we need more.

The other is to better understand what greening and gardens symbolize to people. In places where there has been conflict about gardens like there was in New York City, there was a community uproar against that, and not just by the people who are directly engaged in it. I think the rest of the community recognized that "gee, these people are doing something that is positive, that is assertive, that is on their own initiative, that takes minimal public funds; gee we ought to support that." The gardens and the gardeners stood for something in people's minds, and that needs to be better understood. Also, if you want the research to have implications for policy and ultimately for what people are doing in the community, I think there's a publicity engine that needs to be marshaled.

SULLIVAN

We don't know what dose of nature on a daily basis is important to have the kind of impacts that we'd like to see. And we don't know the concentration of nature that's necessary. Is one tree enough in a view? Do you need a bunch of trees? Or in any view shed, does 20% of the view shed need to be vegetation or does it have to be 50%? So we don't know the concentration. We don't know the duration. How much time does someone need to spend looking at or being in that environment in order to have the kind of positive impacts that we're talking about? And finally we don't know the frequency. How often, how many times in a day for instance does a person need a little dose of nature in order to have these kinds of impacts? I think if we had that information we could

McPHERSON

One of the things that we're working on is using some of the new technologies in remote sensing to determine how the canopy cover of communities has changed over time. As communities grow outward, and forests on the edges of our cities are subsumed in urban development, trees are lost but then development occurs new trees are planted in an urban forest. We can look historically and see how canopy cover has changed. We can use these new high resolution satellite images to identify what the existing canopy cover is and what the potential for tree planting is throughout the community, and then predict what the future benefits will be of different levels of tree planting and different types of trees and different areas of the city.

Then there's the whole human dimension. What are the obstacles to increasing canopy cover related to people's attitudes and perceptions about trees? What are the barriers to tree planting in terms of people's willingness to plant and care for trees? What are the combinations of incentives that can be used to overcome some of those barriers? How do we create a market for trees in our community? What are the benefits of trees? There are different types of situations where we have high levels of air pollution. What are the appropriate environments underground, the types of soils, existing or engineered, that are required to allow a tree to grow and thrive. So there are a lot of issues, a lot of questions, related to tree selection and engineering trees and soils in a way that will provide a variety of benefits while sustaining a healthy tree over a long period of time.

go a little further in terms of making clear and specific design recommendations. But sometimes I disagree with myself on that; if we don't have that information maybe we'll err on providing a lot more green space.

For community gardens specifically, how big should the garden be? Another question that has to do with the geographic distribution of community gardens within an urban area is How far apart can they be? Is it better to have one really big community garden that concentrates efforts and expertise and becomes a real place and destination? Or is it better to have a community garden within every one mile circle? If you just drew a circle around this community garden, and then one mile away there needs to be another, you

know you need to be able to get to another one. Would that be better for a community? My guess, my hunch, is that broader geographic distribution, smaller community gardens would be better. That's just a hunch at this point. It is an interesting research question, particularly important in poor communities where transportation is difficult. If you thought about public gardens in the communities in Chicago where we've done our work, if people have to actually drive to them, well you could essentially say that they wouldn't be used.

Another question, a whole set of questions exists related to biodiversity and urban communities. I've focused my career on looking at the impacts of greening efforts on human functioning. I think another related question would be what are the impacts of community gardens on other kind of non human but really important outcomes like ecological functioning? To what extent does the distribution and spread or existence of community gardens have an impact on healthy ecological function within an urban context? These are fundamental questions and we need to recruit some people who have a strong ecological understanding to do the research.



WESTPHAL

There is so much more to learn. One of the most exciting things that has been emerging over the past few years is the public health frame on the impacts. Whether that's access to fresher vegetables, particularly low income neighborhood or reduction of particulate from the air and the impact that that has, or the potential impact that has on asthma. The idea of being able to quantify in ways that are meaningful many of these benefits that come

from the urban forest, whether it's physical, social or individual is exciting. I also think that there's a need to integrate. We need to be doing more to understand impacts within the context of urban planning or development. The more we hook in with Habitat for Humanity or with job development and job training or with job corp or with service learning in schools or fitting what we do into larger and more readily identified problems facing society, facing policy makers, the more successful we'll be in the long run. And the more we're integrated into those big questions, the less we'll get sidelined or be the item that gets cut from whatever budget because we'll be making more and more of the point of the fundamental roles.

HAMPTON

I think it would be really positive and helpful to map these spaces and to map the spaces, all the in the US and maybe Canada, and see how much or how little urban green areas we have. You always hear about this mapping project or that for community gardens, but where is it?

LAWSON

We need to show the overall picture better. We can't keep relying on a survey that was done over 10 years ago now. We need research that's showing the breadth. To do that's going to require people taking stabs at definition. What is greening? What is gardening? You know, those kinds of definitions. And also acknowledging that it's going to be largely self defined. How do we do research on that? I think that the cultural diversity issues are an area that can be further explored. Every community has a different way of gardening. In recent immigrant communities, there are very different kind of needs than in established more heterogeneous communities. And so I think that there's a cultural diversity research that could be really wonderful to do. That's going to require people doing the research that can speak with gardeners from all over the world. And we're not really doing all that much research that's actually talking to the gardeners in that capacity. I'm still a big advocate for community food security and the role of gardening in community food security. And in the evolutionary capacity of gardening and

greening, if a garden does become permanent, if it isn't in a park, does it get stagnant? Or how can we create spaces and programs that can change with community without disintegrating? Or becoming too rigid. And so I think that that's a really great group of research questions.

I work a lot with community groups in East St. Louis. The burden has been put on them to improve their community spaces. The will is there, but the resources they have to do it are minor. It changes how you do anything because your implementation has to happen at a completely different scale. The landscape architecture design and planning approach that I teach doesn't work in those kinds of contexts. We need to figure out new ways of providing assistance and thinking about how to do these kinds of work so that communities can take the lead and that they can both pull on resources within their community but also a more transparency about where other resources can come from.

NELSON

I guess that my own experience in greening is that in order to really be effective, it's not important to get people on one specific objective so that everybody's doing the same thing. What is important is to get a shared vision based on shared values. If you have shared values and a shared vision I am totally convinced that that makes you much more receptive to not closing your mind to different resources that become available to you. I see that so much in the work I do.

SVENDSEN

We need to continue moving on understanding what the benefits are, but also explore some important land use questions about where we can continue to grow community greening. Another question has to do with management and stewardship- how we can knit together this complex web of different types of stewards to manage the resource a little bit more comprehensively? What happens, if you're talking about garden groups, like community garden groups, what happens when the struggle's over? That's a question for NYC now. The reason the gardens came about was this incredible struggle for all sorts of things; identity, land control, safety. What happens as this neighborhood changes? We need to know more about that. What are the roles of the state and the various levels of the government? What is the role of federal government?



Something that I'm thinking about in my own research and haven't figured out exactly how to answer is, "how is the environment embedded in other aspects of what these community organizations or groups do?" A lot of times we find that we're not just working with "mothers for trees," we're working with groups that have different types of names and yet they're all engaged in some sort of urban greening activity and we draw them out. How can we understand how greening is embedded in what is done in a hospital group, a hospital outreach group or a church group or another organization that's out there?

WOLF

An important area is the whole issue of understanding how greening information moves into local decision-making. The important question for me is the psychosocial services of urban greening. We have just scratched the surface of that. There's a lot of buzz out there now in communities about environmental services, the services themselves as well as the economic value that they represent for communities. In the human or the psychosocial services side, we have scratched the surface of what are those benefits that people gain as individuals, as members of communities or neighborhoods and so on. But we've not yet taken the step of evaluation and I've been sort of poking around, trying to find colleagues who would want to address that. I haven't found many people really in the world of economics willing to take that up. But I'm confident that in time we'll land on something.

Scaling up, I think what we're seeing is a multiplier effect, or what we *could* see is a multiplier effect. You have sort of a keystone, be it a site, be it an urban garden or a residential streetscape, a neighborhood sort of program if you will. As part of that you have the people who are individually engaged with that site as the gardeners, the planters, the stewards. But I think there's a ripple effect, a multiplier in that others benefit from the cohesion, the community cohesion that starts to emerge around this resource. Even those who don't show much interest in the garden or the tree planting, in time if this project is nurtured and gains momentum and becomes a stable element of a community, that there's quite a broad outcome within that community.

Another important research question is how do we best understand this, in terms of research methods? A challenge I've encountered is that policy people want the science facts, they want the fact bits, an evaluation, a percentage change, quantification. But understanding particularly at the community level the psychosocial benefits and services of greening requires much more elaborate methodology and you have to tell a story of understanding or a story of knowledge.

KUO

I keep getting requests from people who do community greening and say "can you help us do an evaluation of our work?" And I generally can't. But it's really clear that it needs to be done and I want to do it. Let me say a few reasons why I think it's particularly important from my vantage point to do this kind of evaluation of active greening efforts, and not just study the availability of green space.

I had a graduate student, very bright, Lisette Brunson, who thought about the question of "if we were going to have a community mobilization effort, what kinds of projects might lend themselves to building community or to building capacity for the future in a way that others might not?" So for instance we could do a community clean up, we could do a community garden, or we could do a March of Dimes campaign; any activity that got people together to do something as a group would obviously pay off in terms of various community benefits. But is there a difference in doing community greening as opposed to some of these other efforts? I thought she came up with some really exciting ideas. First and foremost, or most obvious, is this notion of small wins. You do a little bit of greening and it makes a huge difference. It makes a huge difference in how things look. That is probably really well documented by the Kaplans and all their students; you take any photo of any urban scene and you add one tree and the ratings just go shooting up, and you add two trees and it's amazing. So trees or greening make a huge difference in terms of how a scene, how a place reads to people, how attractive it is, how much they might feel proud of it if it's associated with them, how safe it feels. It's a big win for a relatively small effort.

Another thing about greening which makes it different from other community activities or community organizing is continuity. Does it have the continuing quality to build community capacity? You do the clean up and the place looks great for three weeks and then slowly it goes back to its original state. But because community greening is this ongoing activity it both feeds community organization and demands a continuing engagement. Those are the two most exciting reasons I thought we should do some comparisons. You can spend your efforts in any of these very valuable directions, but there are some reasons to

think community greening might be an especially valuable way to go.

From my vantage point as somebody who doesn't have a great deal of investment in community greening efforts, but has done the research on the community green side, it's a little bit frustrating to look over to my side and see the tremendous amount of effort, leadership, activity, these great people doing great things under incredibly, often adverse circumstances, making something out of nothing. They have such good intentions. They have striking levels of success. There are obviously failures, but, it's just a little frustrating to look over and see these successes going on and then only an occasional request to help document these successes. The projects, the gardens, they have no resources to do so, they don't have the expertise, because they didn't ask or include it in proposals for funds. It's all a little short sided from my point of view. That's the researcher in me talking.

My feeling is that the community gardening movement has been doing something really, really important and we see the benefits. There are enough of you, you're sufficiently organized that you should get together and tie even 1% of each project's total budget to research, to doing the research right. We've done a billion unconvincing studies. They don't get published. When they get published, nobody makes anything of them because they're not convincing. If we just put all the money put into all those little unconvincing studies into two or three convincing studies, we would have some real traction. The tree planting effort that Chicago has embarked on was \$10 million dollars. That grew out of findings from a \$200,000 project. So the return on investment here is staggering.

If the community would just make that investment... one of the ways you succeed as a scientist is to study something that is actually true. If you have significant findings you'll be able to publish them. We know this stuff works because it's happening on an anecdotal level with such overwhelming frequencies. Okay, it's a really good bet that if we did the systematic research, we would have successful things to document. So do it. If you are doing such worthwhile work and you're having trouble funding it or justifying it, then this is what you need.

The most important thing that future community greening research should do in my view, is to stop doing unconvincing studies. You need research that convinces skeptical audiences. Not research that convinces the converted. It's the rigor of the approach. So I think maybe the overall message is get serious, both in terms of getting the resources together to do good work and then doing the really rigorous work.



*Sprouting Healthy Kids project,
Sustainable Food Center
Austin, TX*

Promoting Community Gardening Through Research: A Survey

Introduction

ACGA, in its effort to improve the knowledge and practice of community gardening, has formed a Research Committee, which is open to all members. ACGA's Research Committee – formed to improve the knowledge and practice of community gardening and open to all members - is currently chaired by Keith Tidball. The group's open monthly toll-free conference call meetings are generally the first Tuesday of each month at 1:30 PM eastern time. In 1992, ACGA published an initial Research Agenda for the Impact of Community Greening identifying seven target areas for research and development:

- 1 The effect of community greening projects on property values.
- 2 The relationship of community greening projects and programs to city wide open space policies and plans.
- 3 Participatory planning and design approaches and techniques.
- 4 Community gardening as an individual empowerment tool.
- 5 The development of constituencies for community greening.
- 6 The contribution of community greening to building social cohesiveness.
- 7 Community gardens as a meeting place for different cultural groups.

Current and recent community greening research

Since the ACGA agenda was created, several important studies on the impact of community gardens on communities have been published. Two of the more significant studies include one regarding property values from New York University and another on crime reduction from the organization Gateway Greening in St. Louis. New York University's study of the effect of community gardens on nearby property values encompassed 636 NYC community gardens and shows a statistically significant and increasing over time, positive effect on sales prices of residential properties within a 1000 foot radius of a community garden when compared to properties outside the 1000 foot ring but still within the same neighborhood. The net tax benefit over a 20 year period to the city is estimated at 647 million dollars or \$1 million per garden.

Gateway Greening's study documents the successes of Gateway Greening and community gardening. As a community development agency, they hoped to show that greening projects have positive effects on neighborhoods and their residents. Some of the positive effects being examined are the reduction of both violent and non-violent crime, increased property values and improvement of property, improvements in the overall appearance of the neighborhood, and increased feelings of safety. Besides the two abovementioned studies, many other significant works on community greening are currently available. The following list of abstracts describes important new research related to various aspects of community greening from a diverse array of geographic locations and academic disciplines.

Author: Keith Tidball and Marianne Krasny in Wals, Arjen (editor), *Social Learning Towards a More Sustainable World*, Wageningen Academic Publishers, Wageningen, The Netherlands.

Title: From Risk to Resilience: A Role for Community Greening and Civic Ecology in Cities

Summary: Cities experiencing social chaos may be viewed as socio-ecological systems that, as a result of a disturbance such as disaster or conflict coupled with lack of resilience, have shifted into a qualitatively different, undesirable state. The authors argue that urban community greening and other "civic ecology" approaches that integrate natural, human, social, financial, and physical capital in cities, and that encompass diversity, self-organization, and adaptive learning and management leading to positive feedback loops, have the potential to play a key role in developing urban community resilience before a disaster, and in demonstrating community resilience after disaster strikes. This paper adds to existing literature on resilience by applying resilience theory to urban socio-ecological systems, by expanding comparative analysis of resilience narratives in cities to encompass more community-based and environmental approaches, and by proposing an asset- and community-based tool, i.e., urban community greening, which can serve as the focus of social learning about resilience

in cities. The paper also integrates knowledge of urban community greening and the resilience theory literature to propose a new “civic ecology”, which we define as a set of tools to help people to organize, learn, and act in ways that increase their capacity to withstand, and where appropriate to grow from, change and uncertainty, through nurturing cultural and ecological diversity, through creating opportunities for civic participation or self-organization, and through fostering learning from different types of knowledge. Finally, the authors call for policy makers and researchers to work with community members to formally integrate civic ecology approaches into adaptive co-management strategies, thus enhancing our understanding of the importance of urban community greening relative to other resilience building tools in reducing risk in cities.

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The book and review: <http://www.ingentaconnect.com/content/ind/ijisd/2008/00000002/F0020003/art00015>



Author: Carolin Taron, with contributions from Sarah Wakefield (University of Toronto), Fiona Yeudall (Ryerson University), Ana Skinner (York University), Jennifer Reynolds (Foodshare)

Institution: Urban Gardening Research Opportunities Workgroup (UGROW)

Title: Seed, Soil and Stories: A pilot study of community gardening in southeast Toronto

Summary: Community gardens are increasingly becoming part of the urban fabric, in Canada and around the world. These gardens, often built on underutilized land, are seen by community members and local service organizations as having a number of positive health benefits. However, few studies have explicitly focused on the health impacts of community gardens, and many do not ask community gardeners directly about their experiences in community gardening. This study investigated community gardening in Southeast Toronto, in order to identify the key health benefits, as well as potential challenges, experienced by gardeners. This project used community-based research (CBR), which includes the community, thus making research more accessible to non-academics and conducting research that helps to meet the needs of communities as they define them. This project was an attempt to allow community members to co-identify future research priorities, while at the same time facilitating ‘learning exchange’ and providing information about community gardening that could be useful to the gardeners themselves. Data on the perceived health impacts of community gardening were collected through participant observation, focus groups, and in-depth interviews.

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Author: Joseph L. Robinson II and Adrienne Simpson

Institution: Isles, Inc.

Title: Isles' Community Garden Survey

Summary: After 25 years, Isles continues to foster more self-reliant families in healthy, sustainable communities. Founded in 1981 as a technical assistance and capacity building organization, Isles has grown to include innovative programs in partnership with community stakeholders. Isles' staff came together in the spirit of evaluation to conduct the 2006 Community Garden Survey to get feedback from Isles' community gardeners in Trenton, New Jersey and gain new knowledge and information that would inform management decisions about the gardening program. In October of 2005, Isles' staff created a basic survey to determine the status of the Community Gardening Program. The Community Planning and Research staff produced a research plan to collect data in January and February, and to analyze the data in March of 2006. Seventy-two gardeners responded to the survey, and 24 of Isles' 43 gardens were represented.

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Survey Respondent Demographics

Gender: 49% Female, 51% Male
Race/Ethnicity: 65% Black/African-American, 20% Hispanic/Latino, 8% Other, 6% White/Caucasian, 1% Asian/Pacific Islander
Age: 56% 26-59 years old, 39% 60 years or older, 4% 18-25 years old

Authors: Heather Davis, Bohdan Petryk

Institution: Spiral Garden and Cosmic Birdfeeder, Bloorview Kids Rehab

Title: Where the seed falls: Healing through awareness in the garden



Summary: Spiral Garden and Cosmic Birdfeeder are two innovative gardens that have been in existence for 22 and 10 years respectively. They are parallel gardens that are a part of Bloorview Kids Rehab, providing an integrated outdoor art/play/garden summer program. Research consisted of participatory research, sociological observation done through focus groups, including long standing participants in the programs as well as their parents, anthropological research including both written and photographic documentation, and phenomenological research through the creation of art and community. Through the implementation of a program that brings both artistic creativity and radical awareness, the authors were able to show how the garden can spur on individual and community change with respect to ability, healing, and food security, while connecting with the natural world in an urban environment. The setting of the garden for these programs is necessary as it creates awareness in participants and staff alike of a slower time scale, of the interconnection of living things, and creates a sense of responsibility in children. The garden sets a precedent for becoming reconnected with food and plants as necessary elements of healing. The healing that happens at Spiral

and Cosmic is in no way restricted to differently-abled children, rather it is a way of healing ourselves through an awareness that has been stripped down in our contemporary urban environment. This includes an awareness of the earth, of each other, of difference, and of the potentiality of the imagination. This research shows the healing effects of the garden through imagination, play, and an awareness of our connections to the earth, one another, and ourselves.

Author: Jennifer Hampton

Institution: Chicago State University, Dept. of Geography

Title: Is there room for community gardens in gentrifying urban areas?

Summary: Although the many positive benefits of a community garden are recognized, questions still remain about who actively supports the gardens and how far a community garden's positive attributes reach. Additionally, in urban communities that are in transition, do new residents still perceive the community garden as a positive attribute to their community, or do they feel this space would be better suited as another form? The creation of community gardens in the past follows an ebb and flow pattern stringing through periods of economic despair. Today, however, there is an interest in incorporating community gardens into the permanent landscape. It is important to determine the perceptions that non-gardeners and gardeners have of this public space in their community and the relationship that has formed with the larger community.

In order to research this issue, three main questions were reviewed: 1) what is the relationship between community gardens and gentrification? 2) when a community is in transition, do the residents support the garden? and 3) how do community garden groups define and engage a social community? For this project two Chicago neighborhoods with only one community garden were selected as case studies. In-depth interviews were conducted with six community gardeners (3 in each neighborhood) and 89 community residents (half from each neighborhood). Results indicate that gentrification is perceived by community gardeners as both a positive and negative impact on the garden. Community gardens seem to beautify the neighborhoods, which can lead to restoration, but ultimately can help to upgrade the area towards gentrification. The second piece of the discussion indicates that in transitioning communities there is a positive perception about community gardens residing in the neighborhood. Over 94.6 percent of the residents surveyed stated that they felt community gardens were an important part of the community. Only 5.4 percent did not feel positive about community gardens. Reasons cited for disapproval varied from poor garden maintenance to the need for more housing. Overall, despite a high rise in property values and the desire to use vacant space for development in some transitional areas, participants surveyed conceptualize community gardens as a good use of city space, even if the resident has never heard of or seen the present garden in the neighborhood

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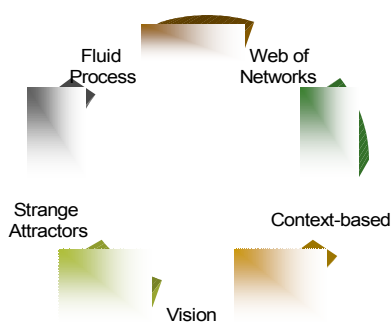


Authors: C.H. Nelson and M. Stadey

Title: Supportive Relationship Building Among Neighbourhood Gardeners:

A Case Study in Thunder Bay, Ontario, Canada

Summary: The aim of this research project is to examine how the development of neighbourhood groups of gardeners may enhance the density of supportive relationships among city residents who live in the same block. Our premise is that shared gardening experiences can be the catalyst for strengthening trusting relationships, increase the density of social networks, and build shared community norms and sanctions that hold collective respect. The project is based on the Contextual Fluidity Model (Nelson & McPherson, 2004; Nelson & McPherson, 2003) and the principles of Community Capacity Building (Nelson & Stadey, 2004 a, 2004b). Contextual Fluidity embraces a fluid process that focuses on building resilience, robustness, diversity and ductility. Formal and informal interactions occur within dynamic and ever-changing webs of networks that have no designated centre. Instead, these interactions are grounded within the context of each activity.



The community-capacity building principles include a focus on vision as a driving force for action, the strength of multiple relationships, the building of shared values, the importance of participation in the process, a keen ear for listening to all community voices, engaging as a community member, a focus on strengths not problems, being opportunistic in using a diversity of resources, finding ways to respect and bring out the unique gifts of individuals and groups, placing more energy into the process than into definitive plans, accepting and building from mistakes, and engaging all.

The researchers began by identifying informal community leaders in each of the twenty city blocks to voluntarily engaged neighbors in gardening activities. There are two approaches to the evaluation of this research. First, each neighbourhood informal leader has been given a camera to visually record interactions among neighbours as they engage in gardening activities. Students enrolled in a 4th year research course matched to a community participant to achieve a collection of case studies of peoples' experiences in enhancing the density of supportive networks through gardening activities. The sample consists of twenty neighbourhood blocks in a rapidly changing part of the city with a high proportion of renters, high mobility, and perceived by the city as a whole as a high risk area for crime, drugs and prostitution. Informal leaders were identified within each of the twenty city blocks to engage neighbours in participating in gardening either in their own yards, the neighbours' yards or a nearby community garden. This study has found to date that gardening has a positive impact on supportive relationship building. Many anecdotal examples have been collected and recorded.

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Authors: C.H. Nelson and H. Kerr

Title: Utilization of Community Gardens by Emergency Food Users: A Phenomenological Case Study, Thunder Bay, Ontario, Canada

Summary: The aim of this 2004 research project was to examine how the lives of people who used emergency food banks and soup kitchens were affected by the process of participating in the planning, planting, tending and harvesting of food in a local community garden. Specifically, how community gardening experiences could affect the participants' perceptions of quality of life, self-sufficiency, and level of food security.

Participant observation techniques were used, whereby the researcher role as "gardener" was primary, and role as observer was secondary. Participant observation gave the researcher firsthand experience with participants, and provided significant contextual information important for understanding the participants' realities. Consequently, both the participants and the researcher were involved in all stages of the garden process.

None of the garden participants were employed and all were receiving some type of government sponsored social assistance such as Ontario Works, Employment Insurance, Old Age Security and Guaranteed Income Supplement, or Disability benefits.

This study found that there were significant quality of life benefits for emergency food users in growing food. For example, the garden was able to provide participants with an opportunity to take self-directed, positive action on the issue of hunger. It enabled individuals who are normally dependant upon others for donations of food a means for taking some control over their lives. By participating in the garden, they were able to choose the food they wanted when they decided they needed it. However, there also were significant systemic factors that prevented self-sufficiency such as lack of cooking facilities, no food storage facilities, and 60 amp service in rooming houses. Furthermore, their lives were so focused on survival in the here and now that saving for future food needs through preserving and canning was incongruous with the lack of daily control over their life situations. Another finding was a perceived distrust of 'the system' which limited the motivation to enhance food security. For instance, the participants voiced concerns that there might be claw backs in social assistance if the funders knew that they were supplementing their income with community garden produce. In addition, making 'the leap' to self-sufficiency in cooking one's own food may increase social isolation. The participants demonstrated their preference for giving garden produce to the nearby soup kitchen rather than taking it home and consuming the garden grown vegetables. Thus, the participants created their own kind of food security by donating the vegetables to the soup kitchen. This research confirms the multifaceted nature of maximizing the benefits of community gardens for emergency food users. The tenuousness of everyday survival coupled with inadequate home resources for cooking, storing and preserving food are all important factors for consideration in enhancing food security through community garden participation. Moreover, the community garden experience needs to provide a social milieu for creating a sense of belonging similar to that observed by attendance at daily soup kitchens.

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Author: Charles Z. Levkoe

Institution: University of Toronto, Department of Geography and Planning

Title: Learning Democracy Through Food Justice Movements

Published in: Agriculture and Human Values, Springer Netherlands, vol. 23, no. 1, pp. 89-98. <http://www.springer.com>

Summary: Food can be a powerful metaphor for the way we organize and relate to society. Beyond subsistence, food is a social and cultural expression of individuals. It acts as an entry point into larger debates and discourse around a multitude of issues. Through food we can better understand our histories, our cultures and our shared future. Food connects us to ecological systems and can teach us about the world in which we live. We also use food as a way to get in touch with our deepest desires or to examine political and social relations within society. A major theme within the analysis of the global food system, along with the world it illuminates, is that our current course of progress and development is unsustainable and unjust. This stems from the increasing focus on people, not as citizens but as consumers. The perspective of consumer implies an identity defined by direct relationship with the market, as profit becomes the most important factor in economic, political and social activity. This identity is with us from the first moments we encounter the world – from entry into the school system to the daily media. In response there are resistance movements being waged internationally by those who refuse to accept the commodification of human relationships. It is a struggle to build a viable alternative system outside the neo-liberal, capitalist marketplace and to reclaim the ethos of democracy. This paper explores the opportunity for grassroots, food-based organizations, as part of larger “food justice” movements, to act as valuable sites for countering the tendency to identify and value a person only as a consumer and to serve as places for actively learning democratic citizenship. Using The Stop Community Food Centre’s urban agriculture program as a case in point, the paper describes how participation can be a powerful site for transformative adult learning. Through participation in this Toronto-based community organization, people were able to develop strong civic virtues and critical perspectives. These, in turn, allowed them to influence policy makers; to increase their level of political efficacy, knowledge, and skill; and to directly challenge anti-democratic forces of control. This paper draws on the author’s experience working with The Stop Community Food Centre as researcher, volunteer, and staff member from the period of December 2002 through June 2006. Evidence presented through this case study draws primarily on a participant-observer methodology, along with archival materials such as program reports and evaluations.

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The publication is not available online, but a PDF can be obtained by contacting the author.

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Institution: Food Policy Institute, Rutgers, The State University of New Jersey, New Brunswick, USA

Title: Polish Dzialki Garden Allotments: Negotiating Space, Use, and Stewardship For Over 100 Years

Summary: Poland’s experience with urban food and ornamental crop production offers a vast history and a little known model for study and replication. In 1949, the post-war government proclaimed a worker’s right to have a garden allotment; in 2005, the Polish parliament passed the Family Garden Allotment Law. These two acts, excerpted from the socialist and capitalist history of Poland represent two points on a long drama over Polish urban and peri-urban landscapes that has resulted in over a century of dedicated use of prime open space property by the Polish populace. In the late 1980s and early 1990s, almost one million individual allotments existed for the use of 40 million Poles. At sizes of 160-300+ square meters, the garden allotments – called *dzialki* – consume considerable space. Their survival reflects an historical balance of the needs of the working public and the strategies of an industrializing economy and a string of successive 20th century governments to feed and placate that restless public. Colonial partition, wars, centralized governments and free markets: all played a role in the evolution of the contemporary *dzialka* form.

In the global south, progressives might hail the urban gardens as land reform and property redistribution in the post-serfdom era. In the north, progressives recognize this as strategic land use planning for public health in terms of community food security, urban green zones, and parks with exercise and relaxation opportunities. Critical analysis reveals that industry and government made land concessions to quell the threat of unruly labor and disruptive social movements. Today, the availability of *dzialki* falls under a unique arrangement of non-governmental organization (NGO) management, local government and private ownership and use arrangements, and the national government oversight authority. And today, as before, the longevity of the garden allotments plots activists against land developers in an uneasy and ongoing dialogue. Methodology includes field research (1991-2000), participant observation at the Polish Ecological Club and the Foundation in Support of Local Democracy (1991-2000), review of literature and relevant law (through 2006), including popular Polish garden magazines (1960-1997).

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Title: Health Benefits of Urban Agriculture

Summary: Health professionals increasingly recognize the value of farm- and garden-scale urban agriculture for nutritional health, personal wellness, urban greening, and an engaged and active citizenry. Many, however, still do not understand that the relationship between health and urban agriculture is backed by evidence-based research published in medical and health related professional journals. This article, available at the Community Food Security Coalition's website, <http://foodsecurity.org/UAHealthArticle.pdf>, references this health literature review that was conducted through the end of 2004.

The health benefits can be broken down into four areas:

Nutrition. Urban gardens and farms produce surprising amounts of the freshest possible food. Farmers and gardeners promote community food security by sharing harvests with friends, families, neighbors, and community members needing emergency food assistance. Dietary knowledge and practice is influenced by practical experience with food – cultivation, harvesting, purchasing in stores and farm stands, cooking. Farmers and gardeners, including (or perhaps especially) youth, eat what they grow and know.

Exercise. Gardening and food production provides good exercise. Research has connected gardening to reducing risks of obesity, coronary heart disease, glycemic control and diabetes, and occupational injuries. Gardening is a preferred form of exercise across age, gender, and ethnicity. Overall, older persons do more gardening than younger ones. Men tend to identify gardening as "exercise" more often than do women, perhaps because women traditionally think of gardening as an extension of cooking rather than exercise.

Mental Health. Working with plants and being in the outdoors trigger both illness prevention and healing responses. Health professionals use plants and gardening materials to help patients of diverse ages with mental illness improve social skills, self-esteem, and use of leisure time. Horticulture therapy promotes plant-human relationships to induce relaxation and to reduce stress, fear and anger, blood pressure, and muscle tension.

Building Safe, Healthy and Green Environments. School and community gardens encourage active participation in the vigor of a positive urban environment. Working collaboratively to "green" a neighborhood creates safe and pleasant neighborhoods that decrease air pollution, reduce crime and enhance civic life. Social engagement is positively correlated with personal attention to health care and wellness. Engaging farm retail activity in towns and cities through farm-to-cafeteria programs benefits the local economy, landscapes and human health.

Planning for Urban Health Risks. Particularly in older cities, it is crucial to test soils for lead before growing food or even before allowing small children to enter and play in the garden spaces. Appropriate gardening practices reduce risk.

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Kids Jump into Community Gardening

What Bounces Out?

Summary and objectives

In this article, I present a brief overview of research that supports children being part of community gardening. Some of this research is being conducted right now, by students and colleagues in my Civic Ecology lab at Cornell. Other research has been conducted by nationally recognized scholars. Wherever possible, I cite sources where the research can be accessed online. My hope is that this article will be a starting point for those of you who believe instinctively that children being part of community gardens is important, but want some evidence to back up your instincts.

Background: The origins of Garden Mosaics

In the late 1990s, I visited my first community garden—the Open Road Community Garden in the Lower East Side of Manhattan. On one side of the garden was a building housing a mosque frequented by Bangladeshi immigrants. On the other side

was a secondary school with Hispanic- and African-American students. In the garden these two groups came together. The Bangladeshi men, dressed in their traditional kurta, were planting pigeon peas, amaranth, flowering coriander, and marigolds. The youth had built a greenhouse that they heated with compost comprising vegetable and fruit scraps collected from a nearby juice bar. They also had constructed a small pond with a waterfall powered by a solar panel. It immediately dawned on me that community gardens, such as the one I was visiting in the Lower East Side, have an amazing potential for informal science and environmental education.

After a number of false starts, my colleagues and I eventually secured funding for *Garden Mosaics* – a youth education program taking place in community gardens. Because of my interest in science and the environment, we focused on designing environmental science learning activities. However, through the years, our goals have expanded to

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encompass our own changing interests and the concerns of *Garden Mosaics* participants. Thus, the program now encompasses community action, multi-cultural and global understanding, traditional knowledge, youth development, and community resilience.

Through our work with *Garden Mosaics*, we came to realize that myriad good things can happen when kids get involved in community gardening. In addition to educational outcomes, recent studies have pointed out the emotional, cognitive, and physical health benefits of children “jumping” into more natural settings such as community gardens. In fact, the importance of community gardens to the healthy development of children in cities has been recognized by a distinguished panel of governors, mayors, educators, environmental activists, and industry executives who are members of the National Forum on Children and Nature. This group, inspired by Richard Louv’s book, *Last Child in the Woods*, has endorsed 29 projects that engage children with nature, out of a group of 500 projects submitted nationwide. One of those endorsed projects, *Project Ecopolis*, was submitted by the American Community Gardening Association (ACGA), and will engage children in spending time learning about nature and getting to know their neighbors through community gardening. *Project Ecopolis*, whose name refers to sustainable cities, builds on what we have learned about engaging children with nature and people in *Garden Mosaics*.



These two factors—time in nature and caring adults—are critical factors in the development of healthy children and healthy environments.

Why is youth education in community gardens important? A research overview

1. The significance of community gardens on childrens’ health

Many adults become involved in gardening because of the way it makes us feel. We may feel a sense of peace, more calm and relaxed, and a sense of accomplishment as we watch seeds grow into edible plants. Children also benefit psychologically from spending time in nature. They may be able to focus better on their studies, and feel confident about what they have achieved. There are physical benefits too, such as losing weight. In fact, the health benefits of spending time in nature are well-documented by numerous studies by Nancy Wells at Cornell, Frances Kuo from the University of Illinois, and others. As a result of Richard Louv and the National Forum on Children and Nature, we can expect more attention and funding will be directed toward these health benefits.

Spending unstructured time in nature has numerous benefits for children, including enhancing their physical and emotional health, and their cognitive abilities.

Sources:

The *Children & Nature Network* website.
<http://www.childrenandnature.org/>

This is a great source of up-to-date information about how to reconnect children with nature, and includes abstracts of recent studies about the impact of spending time in nature on children. Louv, Richard. 2005. *Last Child in the Woods*. Algonquin Press. The book is a review of research on health and other benefits of spending time in nature

Community gardens are places where children, especially those in cities, can spend unstructured time in nature. Because gardeners are present, children share their time spent in nature with a caring adult.

2. The significance of nature experience in youth on creating environmentally-aware citizens

Children who spend time in gardens have ample opportunities to learn about the environment. They can observe ecological processes in action—such as organic wastes turning into soil, or bees pollinating flowers. As opposed to the more formal environmental learning that occurs in school classrooms, learning in community gardens can be experiential and self-directed, *i.e.*, children observe processes and conduct experiments that they initiate and that interest them.

Adults with positive environmental attitudes and behaviors report that spending time in nature as children influenced their adult decisions about the environment. Environmental professionals also report that spending time in nature as a child, often in the presence of a caring adult, was important in their career decisions. In general, longer-term and repeated experiences can be expected to make a much larger impact on environmental behaviors than one-time and short-term experiences.

Sources:

Wells, Nancy and Kristi Lekies. 2006. Nature and the Life Course: Pathways from Childhood Nature Experiences to Adult Environmentalism. *Children, Youth and Environments* 16 (1). http://www.colorado.edu/journals/cye/16_1/index.htm

This important article describes what adults report about childhood experiences that lead to positive environmental attitudes and behaviors.

Chawla, Louise. 1999. Life paths into effective environmental action. *Journal of Environmental Education* 31(1):15-26.

Chawla is perhaps the best known researcher on significant life experiences and the environment.

3. How community gardens balance novelty and familiarity

Two researchers are currently carrying out work of significance in this area, Kendra Liddicoat and Keith Tidball.

Liddicoat, a PhD student at Cornell University, has interviewed participants in outdoor education programs several to 40 years after their outdoor experiences. People remember best experiences that were active, novel, and

emotionally and socially engaging. Community garden education programs can offer such memorable experiences through engaging children in hands-on learning and showing them the novelty of urban agriculture, nature, and diverse cultures in their own neighborhoods.

Community gardens, because of their unique mix of nature, people, and cultures, can create memorable opportunities that children will remember in later life. Community gardens, just like sleep-over experiences at nature centers, can offer children memorable experiences that help them bond to each other and their adult role models. These bonds, formed in a natural setting, can be important as children navigate daily challenges in their lives. The adults, if made aware of the education program in the community garden, may also reinforce what the children learn in the garden.

Although Kendra's research suggests that being in a novel or unfamiliar environment is important to creating lasting memories, novelty needs to be tempered with familiarity—some environments may be so novel that children, or adults, are unable to relate them back to their everyday lives. For example, Galen D'Amato, a Cornell student who was an Outward Bound instructor, interviewed participants on her outdoor courses to determine the meaning that wilderness living held for them. Participants spoke eloquently about the intense feelings they had while in the wilderness, but described feeling at a loss for what to do next after returning home. They had difficulty relating what they experienced during their intense time away from modern comforts to their day-to-day life. Thus, being on Outward Bound did not seem to contribute to environmentally responsible behaviors, such as recycling, in a more familiar setting, although it may have contributed to interest in spending more time in the outdoors.

Community gardens provide an ideal setting for mixing novelty and familiarity. They are near where children and their parents live, yet offer something novel relative to the surrounding concrete and asphalt. The adults in the garden often are familiar to the children in their daily lives. Thus, children may be able to transfer what they learn in the garden to their activities outside the garden. For example, they may learn about eating fresh foods, recycling wastes, and saving water in the garden. With some help

from adults, they should be able to transfer these healthy and environmentally-friendly habits to their daily lives.

Keith Tidball's *Urban Environments* course at Cornell University provides a different perspective on how community gardens might provide a novel experience for students. Every year, Keith takes a group of undergraduates, many of whom have never been to New York City, to spend a week in the city looking at community greening projects. Comments from the course blog indicate the transformative nature of this urban experience for college students. One student remarked:

I joined this class to learn something new, and I have not been disappointed! From urban wild life in Central Park, community gardens, to environmental injustices in Harlem, so much of what I experienced over Spring Break was new to me. Not only have I discovered things that I did not know but I also have been inspired to ask myself a different set of questions.

So while we often consider the value of community gardens as sites for urban kids to learn about local nature and community, their novelty for students from other backgrounds also may open eyes to new perspectives.

Sources:

For information on designing service learning programs in community gardens, see:

Tidball, Keith. 2007. *Urban Environments: Civic Ecology through Service Learning in New York City*, invited presentation at Cornell Public Service Center's annual Faculty Fellows in Service University-Community Partnership Conference, Ithaca, NY.

4. Community gardens and youth science literacy

All gardeners realize the value of hands-on learning about plants, insects, soils, weather, and other science topics. Furthermore, each step of the gardening process, from clearing out weeds and dead leaves in the spring, to turning compost, planting seeds, watering, and managing insects and weeds, lends itself to experimentation. Thus, gardening offers many possibilities for "inquiry-based science learning,"

which is an effective strategy in helping youth to acquire science concepts and to understand the scientific method. In short, science education research suggests that we should encourage youth to ask questions, conduct experiments, and think critically about their results. We can think of hundreds of questions that youth might ask in gardens and then design experiments or observations to find an answer. Does newspaper or black plastic mulch better control weeds? Which seed variety yields the biggest pumpkins? Does where a carrot is planted influence its taste? What butterflies are attracted to which plants?

Youth and adults participating in community gardening education programs can also join in national and international Citizen Science projects. These projects provide opportunities for students to collect data for larger research projects than they could design themselves, through forming partnership with scientists. The data collected by youth are shared with scientists using the internet, and are critical to the success of the scientists' research project. Citizen Science projects are varied, and can involve collecting information on weather, water quality, plant phenology, and wildlife and insect populations.. Students take simple observations, for example of the number and species of birds that come to a feeder, which are then aggregated over a large area to determine regional and national trends.

The Garden Mosaics i-m-science investigations are similar to Citizen Science projects in that they involve lay people in collecting data and sharing it over the internet. However, Garden Mosaics has tried a slightly different approach. In all four Garden Mosaics i-m-science investigations, participants not only make observations about plants, animals, and physical aspects of the environment, but also collect information from people—that is, by interviewing local adults and elders who are knowledgeable about the garden and growing practices. For example, in the Weed Watch investigation, participants not only make observations on weed species and growth, but also collect information about how gardeners are controlling the weeds. In the Garden Hike, participants collect information through observations and interviews with gardeners about the social, food security, and environmental benefits of community gardens. And in the Gardener Story, youth learn from

gardeners about the connection between planting practices and cultural traditions. In short, youth participating in the Garden Mosaics i-m-science investigations learn about science as well as about the local or traditional knowledge of elder gardeners

Sources:

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Project Monarch Watch (<http://www.monarchwatch.org/>).

Informed citizens: Improving science learning by teaching through inquiry. 2007. College of Agriculture and Life Sciences News. <http://www.cals.cornell.edu/cals/public/comm/pubs/cals-news/upload/cals-news-spring-07-science-literacy.pdf>

5. Community gardens as a means of incorporating local and traditional knowledge in science

One of the unique aspects of community gardens is how they bring together people with diverse kinds of knowledge. “Traditional” knowledge, as opposed to scientific knowledge, refers to the understandings of peoples who have a long history of sustainable co-existence with nature. Local knowledge is knowledge that we pick up through daily experience, including the knowledge of gardeners. It is difficult to find a term for the knowledge of community gardens who have

Gardens offer numerous opportunities for inquiry learning, from defining questions about the plants to designing observations and experiments to answer those question. Research shows that inquiry is an effective means for youth to learn science.

learned about farming in a rural setting in the southern US or in another country, and have adapted that knowledge to an urban setting. Regardless of the term we use to describe the knowledge held by community gardeners, it may be useful to examine how youth can

benefit from learning from gardeners.

What does the research say about incorporating “local” or “traditional” knowledge in science education programs? University of Saskatchewan Professor Glenn Aikenhead has written extensively about the disconnect between students’ everyday lives and classroom science. He presents evidence that many students, especially those from non-western cultures, live in a culture that is foreign to the “culture” of science, which hinders their ability to learn science.

To engage youth in learning science, Aikenhead claims we need to help them “cross borders” between their lives and science. One way to do this is for a young person to first learn from someone who shares his or her culture, and then be introduced to related science concepts. Community gardens provide ideal opportunities to do just that. Education programs can be designed to take advantage of the knowledge of gardeners who share the students’ cultural or ethnic backgrounds. So for example, in Garden Mosaics, youth interview elder gardeners about their knowledge of plants, planting practices, and cultural traditions, and then learn about the Western scientific principles that underlie those practices. Going back to the Lower East Side Open Road Garden, if the youth observe the Bangladeshi gardeners’ interplanting system of peas, amaranth, marigolds, and flowering coriander, they can then go on to learn about nitrogen fixation, pollination, biological pest control, and other science concepts underlying the gardeners’ practices.

Interestingly, our colleagues in South Africa are pursuing similar means to engage young people in learning science. Under the leadership of Professor Robert O’Donoghue from Rhodes University, they have designed a series of lessons that integrate local knowledge into school life sciences, chemistry, and physics curricula, and thus help students coming from non-Western traditions “cross borders” into school science. These include units focusing on wild edible greens (imifino), hand washing and sanitation, fermented foods, and indigenous home construction. For example, in the fermented foods unit, local parents come into the school to demonstrate how to make fermented drinks from maize meal; the teacher

then uses these activities in a lesson about the chemistry of fermentation. O'Donoghue claims a complementary connection between traditional knowledge of elders in the community and scientific knowledge embedded in school curricula. Traditional knowledge serves as the "how" and scientific concepts provide the "why."

Although both O'Donoghue and I originally looked at the knowledge of elders in community gardens and other settings as an opportunity to introduce students to western science, it is important not to forget other values of non-western ways of looking at the world. Non-western perspectives may contribute to developing more sustainable ways to garden and to manage ecosystems. For example, modern gardeners may be interested in traditional ways of interplanting, such as of corn, beans, and squash in the Native American Three Sisters method, or the pigeon pea-amaranth raised beds in the Bangladeshi garden in the Lower East Side of Manhattan. The knowledge of gardeners who use gardens as a way to recover from past trauma also may help us understand how gardening can be used in healing and resilience.

Sources:

Aikenhead, Glenn. 1996. Science education: Border crossing into the subculture of science. *Studies in Science Education* 27:1-52. http://www.usask.ca/education/people/aikenhead/sse_border.pdf

Sharenet: <http://wessa.org.za/publicationssharenetmore.asp>

Garden Mosaics: www.gardenmosaics.org

6. Community gardens as an element of "glocal" education

As my graduate students and I delved deeper into our investigations of community gardens and youth education, we realized that their role as sites for multi-cultural understanding could be leveraged into something bigger. We started with these ideas:

- research about place-based education suggests that students learn from hands-on experiences in their local environment,
- novel experiences create long-lasting

impressions on youth;

- a need exists for US youth to have greater understanding of our larger, global society; and
- community gardens embody many aspects of a larger global society – i.e., a society in which the global and local are increasingly intertwined.

Traditional or local knowledge of elders in community gardens may be used as an entrée into learning science for young people.

As an example of the last point, community gardens are sites where immigrants grow familiar foods in urban environments far from their country of origin. They adapt familiar planting practices to a new climate, new soils, and new ways in which people engage in agriculture. And they often garden alongside people who are similarly displaced and use gardening as a way to gain a new sense of place.

The term "glocal" has been used to emphasize the importance of coupling global with local (or place-based) education. Although there are lots of applications of the "glocal" concept, we have used it to look at youth motivation to learn science. In a project that grew out of our work in South Africa, graduate student Jamila Simon conducted a study to determine the effect of local and global contexts for learning activities on motivating US youth to engage in science learning. Jamila implemented a 10-week series of lessons for urban minority and rural youth, which integrated activities focusing on the students' local environment (e.g., a water quality unit allows students to explore fecal coliform populations in local streams) and activities drawing from her experiences as an environmental educator in South Africa (e.g., an introduction to cholera and how South African youth test cholera using simple kits). She wanted to know which activities were most likely to motivate youth in after-school settings to learn science. She found that although both local and exotic contexts appeared to motivate the youth, when asked to design their own lessons plans for children, nearly all the youth chose an exotic context (e.g., rainforest preservation in the tropics, alternative transportation in Brazil) over domestic topics. This result, although preliminary, suggests

that youth are interested in learning and teaching about global environments, and that incorporating an international context may be a factor in motivating students to engage in science learning activities.

Community gardens can be at the cusp of a new movement toward glocal education, or education that directly addresses the increasingly-blurred boundaries between the local and the global. Is a program where youth learn about the cultures and planting practices of immigrants in their own neighborhood local or global education? Is the knowledge of a Laotian gardener growing vegetables in Minneapolis “local” knowledge, traditional knowledge, or something else for which we perhaps need a new name? What better place than community gardens to help youth and adults come to understand the implications of the displacement and resilience of people and ecosystems in a “glocal” world.

Source:

Haynes, Elaine. 2006. Going glocal in science centers. <http://www.cientec.or.cr/mhonarc/redpop/doc/msg00024.shtml>

7. Community gardens as a locus for community action

So far, we have seen how community gardens have significant value as sites for spending time in nature, for environmental and inquiry science education, for motivating youth to learn science, and for understanding a world where the global and local are intertwined. Many community gardens have something else going on – i.e., community action. Just as many gardeners get involved in grassroots activism, community gardens can serve as training grounds for youth community action.

Tania Schusler, a recent PhD graduate from Cornell University now a professor at Antioch University New England Graduate School, conducted research into youth environmental action programs, including those taking place at community gardens. Environmental action can take on a number of forms including physically improving the environment, educating others, conducting ecological or social inquiry, advocating for changes in policies, and providing products and services to the community (e.g., through a farmers market). Community gardens provide ample opportunities for engaging in

environmental action – from creating new or improving existing gardens, to educating people about healthy eating or advocating for garden preservation.

Community gardens bring together cultures and plants in ways that challenge concepts of local and global, and thus offer unique sites for youth to learn about their local environment and its relation to the larger world.

We originally incorporated community action into Garden Mosaics as a way to motivate kids to learn science. Interestingly, through Tania’s research we have discovered the parallels that exist between science learning and community action.

According to Tania:

Youth often described similar challenges, whether in the process of doing science or engaging in community action. For example, some found challenge in defining a research question while others found challenge in deciding upon an action project. Some found challenge in designing and conducting experiments in terms of planning ahead and figuring out how to make it work. Others found challenge in developing a larger vision and then planning and coordinating with peers to make it happen. Some spoke of debating with classmates about the interpretation of data, while others spoke of sharing opinions in the discussion of topics related to personal and community interests. Some exhibited understanding of scientific relationships in a social-ecological system (e.g., relationships among green space, air quality, and asthma in an urban neighborhood), while others exhibited understanding of the power relationships in a social system (e.g., a school district). Youth also exhibited critical thinking in their descriptions of their environmental action experiences, which reflected both scientific and civic dimensions.

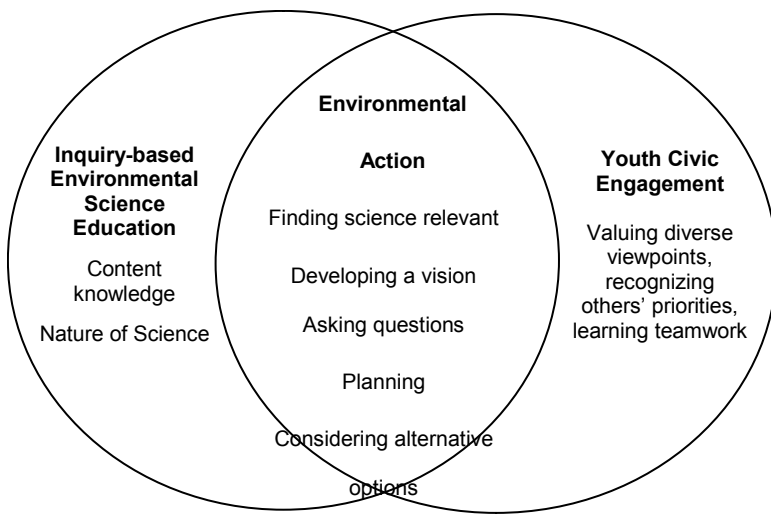


Figure 1. The interplay of science education and youth civic engagement occurs in the development of perspectives and skills characteristic of both.

While inquiry-based science education and youth civic engagement are distinct phenomena, the processes of scientific inquiry and civic participation involve many of the same skills. Primary among these are developing the ability to identify problems or questions, and to think critically about ways to address these problems and about the meaning of any results that are obtained. Thus, environmental action offers opportunity for the synergistic integration of science and civic learning.

Source:

Schusler, Tania. 2007. Youth-adult partnerships creating positive environmental change. PhD Dissertation, Cornell University, Ithaca, NY.

8. Gardening and youth development

A second result of Tania’s research also may be useful to community gardens that involve youth. When community gardens partner with community-based organizations, whether they be halfway houses, 4-H or faith-based programs, it is important to be sensitive to the educators’ goals for their youth

Community gardens provide training grounds for civic engagement. Community action and science education can develop similar critical thinking skills in youth.

programs. In nearly all the youth environmental action programs that Tania studied, the educators’ primary goals focused on youth development, not

on the environment or science learning, or even activism. They spoke of their hopes for the youth, and expressed a desire to provide opportunities for youth to grow through such things as: sharing decision-making about program goals; creating safe spaces; building respectful, trusting relationships; bridging differences and creating opportunities for all learners to contribute; setting clear, rigorous expectations and adequate structure; providing opportunities for meaningful contribution; supporting youth as they encountered new challenges; connecting youth with their community; and expanding youth’s horizons through novel experiences. Marcia Eames-Sheavly, a colleague in the Cornell University Department of Horticulture, is a leading figure in children’s gardening and youth participation, a critical aspect of youth development. Community gardens can follow guidelines for programs that encourage youth participation in planning, creating, and maintaining gardens, teens sharing their knowledge with younger children, and youth making positive changes in their neighborhoods. In this way, community gardening will contribute to positive youth development.

Sources:

Schusler, Tania and Marianne Krasny. 2009. Environmental action as a context for youth development. *Journal of Environmental Education*. Posted at www.krasny.dnr.cornell.edu

Eames-Sheavly, Marcia. 2008. Garden-Based Learning. <http://www.hort.cornell.edu/gbl/index.html>

Eccles, J., and Gootman, J. A. (Editors). 2002. *Community Programs to Promote Youth Development*. Washington, D.C.: National Academy Press.

9. Community gardens and community sustainability and resilience

In discussing Tania Schusler’s work, we focused on how youth environmental action programs in community gardens may contribute to science learning and youth development. But what about the impacts of such programs on communities? Can youth community garden education programs contribute to building resilient and sustainable cities? One obvious way that environmental action programs benefit communities is through the action projects that youth conduct – whether it’s building a new raised bed, sharing produce with elderly neighbors, helping younger children to learn about gardening, working with elder gardeners to organize harvest festivals, or advocating for more green space. Our Garden Mosaics research indicates that programs

can also impact their community by providing positive outcomes for the participating elders.

Educators at community-based organizations focus on youth development. What better way to meet these goals than spending time in a structured garden environment, alongside caring adults?

In fact, one of the biggest successes of Garden Mosaics has been the positive relationships formed between youth and elder gardeners, and the enthusiasm among gardeners for sharing their knowledge with youth (Table 1). Although the original reason for incorporating learning from elders into this program was to develop opportunities for youth to learn science within the context of their own community, this multi-generational aspect of the program turned out to have significant benefits beyond youth learning. Through recognizing and honoring the knowledge of elders, Garden Mosaics created the conditions for these active adults to become even more involved in their communities.

My colleague Keith Tidball often thinks about the larger picture, and it is Keith who first brought up the idea of looking at the impact of youth education programs on the overall community. He has taken his knowledge of social-ecological systems, and applied it to community gardening education programs. In short, Keith has asked us to think of cities as social-ecological systems, which have attributes that make them more or less resilient. A system that is resilient is sustainable when faced with change, such as shifting demographics or changes in climate, or even catastrophes such as flooding or ethnic conflict. Resilient social-ecological systems have a number of attributes, including biodiversity, ecosystem services, civic participation, and the ability of city residents to learn adaptively. Keith has even suggested that Garden Mosaics and other Civic Ecology Education programs in cities that integrate biological and cultural diversity, civic participation, and adaptive learning, play a role in fostering resilience in cities through building trusting relations among youth and adults, conducting action projects to enhance biodiversity and ecosystem services in the garden, expanding the number of people involved in participatory management of urban open space, and

helping individuals to use gardening as a means to recovery from trauma.

Sources : Krasny, Marianne and Keith Tidball. 2008. Applying a resilience systems framework to urban environmental education. Submitted to: Environmental Education Research. Available at: www.krasny.dnr.cornell.edu
Krasny, Marianne. 2006. Garden Mosaics Evaluation. www.gardenmosaics.org



Table 1. Educator responses to survey question asking them to “describe the greatest impact of Garden Mosaics on gardeners.” (n = 52 educators, some educators reported multiple impacts)

Gardener Impact	Responses (#)	Sample Educator Response
Opportunity to interact with youth	20	<p>The gardener involved in this project appeared happy to share his knowledge with students and he seemed proud to show the 'fruits' of his labor</p> <p>Interaction with youth and renewed sense of purpose leads to increased personal vitality</p> <p>Common interest in plants eliminates apprehension about working with 'scary' city kids</p>
Sharing knowledge with/ teaching youth	9	<p>Educators enjoyed sharing their knowledge with the students and helping the students in their research</p> <p>Educators were pleased at being able to share the how and why questions about gardening with youth</p>
Acquiring new information/ skills	7	Educators were excited about new ways to produce food, new materials and new ideas
Learning about science	5	Benefits included realization of the science involved in gardening. Participants gained understanding of basic science, composting, connections
Practical aspects	4	Bringing food home to their families and friends was a good experience
Learning about youth	3	Children could grasp gardening concepts and enjoy the experience!
Personal growth	3	Participants felt valued and included
Connecting to nature	2	<p>Participants realized the connection between nature and the elderly</p> <p>Increased environmental awareness resulted from the experience</p>
Building community	1	The project contributed to community building in a positive way

Why a Community Gardening Youth Program?:

Using Asset-based Approaches

To summarize, there are at least eight reasons that a community gardening program is important for children and youth:

1. Children who spend time in nature experience enhanced emotional, cognitive, and physical health.
2. Children engaged in community gardening can learn about the environment and become better environmental stewards.
3. Gardening facilitates learning about science and seeing real-life applications of what they learn in the classroom.
4. The knowledge of elder gardeners in the local community provides children and youth with an entrée into learning about science. The knowledge of elders also can make important contributions to managing land sustainably.
5. In community gardens where the gardeners come from different countries, children can learn about different cultures and how cultures adapt in a global world.
6. Children become engaged in community action and gain valuable citizenship and critical thinking skills.
7. A well-designed youth program in community gardens incorporates elements leading to positive youth development.
8. A community gardening youth program can contribute to the resilience and sustainability of the surrounding neighborhood.

Any one community gardening youth program may not achieve all eight outcomes. In fact, you may want to design your youth program according to the outcomes that are important to you and your supporters. For example, if your goals are to change kids' environmental attitudes and behaviors, you should think about a longer-term program where youth return repeatedly to the garden, and become engaged in hands-on gardening. On the other hand, if your purpose is to help children better understand the science they learn in the classroom, shorter visits where concepts such as pollination or nutrient cycling are demonstrated using plants, insects, and compost piles may be sufficient. (Although a longer-term program where kids get to observe and experiment will be even better.) If your goals are for youth to learn about community action, then engaging them in designing and conducting an action project is called for. If your goal is to build stronger communities, consider opportunities for youth to form positive relationships with adults while working together to improve the garden and neighborhood.

Regardless of your program's goals, it is important to emphasize that just as community gardens are an asset for their neighborhood, a youth community gardening education program is also asset-based. In other words, we are looking at what a community has that's positive and planning a program around that asset, as opposed to looking at urban communities as depauperate, toxic wastelands. The community gardeners, who bring their knowledge of growing plants, their commitment to building a healthy environment and community, their cultural traditions, and their experience using gardening to overcome hardships, are critical components of the assets that a community gardening youth program can build on. The beautiful gardens that these individuals have created are also an amazing asset in urban communities.

Understanding Impacts

Assessing whether you reach your goals presents its own challenges and generally involves partnering with an experienced evaluator. In our own experience, however, evaluators may not be used to working in community garden environments, where things can change from minute to minute depending on the weather, emergencies that arise in children's lives, and the whims of the youth leader. Thus it is important to discuss these issues with the evaluator and develop a plan to address them.

You may also wish to simply document the program outcomes that you can readily observe. Were new gardens created? What activities did the gardeners engage in with youth? What do the youth and gardeners say about their involvement? While not a rigorous evaluation, this sort of information can be important to funders.

Three excellent web resources are currently available for those wanting to go further in understanding children and nature programs, and for those wishing to evaluate their own programs. The Children & Nature Network publishes the latest developments in the “nature contact” movement, and includes summaries of current research. The My Environmental Education Evaluation Resource Assistant (MEERA) is an online “evaluation consultant” created to assist environmental educators with evaluation needs. It contains a wealth of evaluation resources presented in a user-friendly manner. Finally, Cornell University’s Garden-based Learning website includes extensive links to evaluation resources, among a myriad of other resources for conducting youth gardening programs. Now that Project Ecopolis has been endorsed by the National Forum on Children and Nature as a best practice for engaging kids in nature, ACGA will become part of a nationwide effort to evaluate “nature contact” programs. Within the next couple of years, the Forum’s Nature Contact Evaluation Center will make available additional user-friendly protocols that can be used to evaluate the impact of such programs on children’s health and environmental understanding.

Resources

My Environmental Education Evaluation Resource Assistant (MEERA). <http://meera.snre.umich.edu/>

Children & Nature Network. <http://www.childrenandnature.org/>

Garden-Based Learning. <http://www.hort.cornell.edu/gbl/index.html>

National Forum on Children and Nature.
http://www.conservationfund.org/children_nature

For research-based information about the benefits of school gardening, see: Pranis, Eve. 2008. School Gardens Measure Up. National Gardening Association.
<http://www.kidsgardening.com/Dig/digdetail.taf?Type=Art&id=952>



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A Research Agenda for the Impact of Community Greening, Revisited

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Background

When we did research on community gardens in New York City in the late 1970s (Francis, Cashdan and Paxson 1984) the prevailing belief was that most if not all community gardens would be short-lived. In our interviews with planners and policy makers, many saw the thousand-plus gardens throughout the city as a short-term use of land until something better came along. During this period of economic decline and abandonment in many parts of the city, no one except the gardeners seemed interested in the gardens becoming an enduring part of the city's landscape. Today, some 30 years later, an impressive number of the original gardens remain with many more being developed. In some cases, community gardens have become a recognized and legitimate form of open space in New York City and new ones are being incorporated in city parks and waterfront areas.

Our study in NYC led me to continue to do research on the importance of community open space after moving to California in 1980. Chris Cordts (of the Denver Botanical Garden) and I, then both ACGA Board members, assembled at the Board's request a suggested research agenda for community greening (Francis and Cordts 1991). Based on input from a number of experts and community gardening leaders, we identified key areas in need of focused research. Now some 15 years later, I appreciate ACGA's invitation to revisit this monograph to explore where we have made progress and suggest what remains to be done.

Looking back over this period, I am impressed with the expanding number of studies on community greening from academic researchers, graduate theses, non-profit organizations and government agencies. They not only inform practice but provide important theoretical and historical support to the importance of community gardens in urban and human development. I am confident that research on the topic will continue to expand.

There have been significant advances in research on the benefits and limitations with community gardens. The past 15 years has seen many important new books and scholarly treatments of the subject. These include historical studies (Lawson 2005), case studies of projects (Saldivar-Tanaka and Krasny 2004; Hou et. al. in process), innovative design approaches ((Winterbottom 2000; Hester 2006), evaluation of project effects (Been and Voicu 2005; Lewis 1996; Marcus and Barnes 1999) as well as more policy implications (Harnick 2000; Kirchbaum 2000). Especially encouraging are the increasing number of interdisciplinary studies from psychology, horticulture, landscape architecture, economics and public policy published in peer reviewed, scholarly journals.

Summary of advances to date, and suggested future directions of research

Areas of research that have enjoyed advances in knowledge and methods:

- **History.** The historical development of community gardens has been well documented including national and local historical reviews, although several cities still lack historical overviews.
- **Health benefits.** The social, psychological and physiological aspects of gardens have been studied in increased numbers. We now know that gardens provide important health benefits such as reduced stress, increases in physical activity and decreased obesity.
- **Economic benefits.** Several empirical studies show community gardens have positive effects on surrounding property values and serve as a catalyst for adjacent economic development.
- **Participatory methods.** Design and planning methods have advanced and we now know how best to engage community members in designing and developing gardens.
- **Relationship to other projects.** The connection of community gardens to healing gardens, farmers' markets, etc. is a new and promising area of research.

Areas of research that have been neglected

- The role of community gardens as elements of other types of urban open space such as large parks, waterfronts, etc. How are more traditional open spaces including community gardens as part of their program of uses?
- Children and youth. Few studies have been conducted on the role of children and youth in community gardens. How can children and youth be successfully integrated?
- Social inclusion. How can community gardens become more inclusive places?
- Cultural aspects. How can gardens become the meeting ground for different groups including non-users, non residents, tourists, immigrant groups, etc.?
- Permanency. Garden preservation remains a critical research question including how land ownership, local politics and policies and land tenure impacts project permanency. We need more research on both successful and unsuccessful efforts to preserve gardens and how they have can become part of permanent open space systems.
- Methodological issues. We still need more case studies using comparable methods. What are the most effective methods of researching community gardens?
- Planned versus spontaneous gardens. What are the differences between planned and designed gardens and more spontaneous and even unofficial forms of community greening?
- Garden economics. There is a need for better documentation of the internal economics of gardens to aid the development of new gardens. How much funding is required? What are the most effective funding mechanisms used?
- National policies. Despite the long history and advances in community open space, we still lack a unified national policy on community gardens. Could they become part of significant legislation in the same way that parks, natural areas and urban forests have become recently?

Areas for new research

- Impact on climate change. As concerns increase with global warming, the contribution of community gardens to positive remedies is an important topic for research.
- Sustainability. Contribution of community gardens to sustainable development of cities is poorly understood. What dimensions of sustainability are most important in studying community gardens? Can a standard similar to LEED for buildings be developed for developing and rating gardens?
- Policies. More policy studies are needed including effective local and national policies that support community garden programs.
- Garden stories. We need more stories that people have to tell about their efforts. These quotes are often powerful testaments to the use and meaning of community gardens. They are also extremely helpful to make the case about the unique nature of the gardens and their importance to both non-users and decision makers.

Next Steps

We have seen significant advances in research related to community greening projects and programs. What once had been more of a subjective or even mythology of garden benefits is now a well-developed body of science with both qualitative and quantitative evidence of garden benefits. Yet much still remains to be done. Only with solid scholarship along with continued field experiments and local action will the community garden movement continue to flourish and advance.

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ACGA Membership levels are as follows:

Basic: \$30 (Basic members receive all benefits listed above and are eligible to vote in ACGA's Board of Directors elections.)

Professional: \$60 (Professional members receive all of the benefits of a basic member, plus receiving a copy of our membership directory.)

Library: \$90 (Library members receive the benefits of professional membership and ACGA monographs.)

Organization: \$120 (Organizational members receive all of the benefits of a professional member for up to four staff members, plus discounts for up to four Conference attendees.)

Sustaining: \$600 (Sustaining members receive all of the benefits of a professional member, conference discounts for up to six attendees and "logo" recognition in our publications.)

Corporate: \$1,200 (Corporate members receive all professional membership benefits, conference discounts for up to ten attendees and "logo" recognition in our publications.)

Sliding scale: \$15 (Sliding Scale members receive all of the benefits of Basic membership at a discount due to their status as "student", "senior citizen", or "low income" individual. Sliding scale memberships are underwritten by the Susan A. Thode memorial fund.)

