

**Executive Summary
On Research Outcomes
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**Trees and Positive Youth Development:
Research on Effects of
Urban Forestry Work Experiences
on Inner City, Underserved Adolescents**



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EarthCorps & University of Washington

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EXECUTIVE SUMMARY

Activity and service work in urban forests can provide children and youth with opportunities to interact with nature and the unique ecology of the Pacific Northwest. A recent book makes the case for saving children from Nature-Deficit Disorder.¹ Studies from the past three decades point to positive effects of nature experiences. Though fewer in number, the most recent studies have explored urban nature outcomes, as compared to wilderness trips and therapy. They tell us that both passive views of nature and active encounters with landscape generate benefits for young people. Urban forests provide rich settings for future exploration and research about the beneficial interactions of youth and urban nature.

A recent study conducted jointly by EarthCorps and the University of Washington² used multiple phases of research to evaluate the developmental benefits associated with service work in urban forest restoration.³ When evaluated at the close of a service work program youth reported little change in self concept, leadership skills, environmental concern, and other developmental traits. However, in another phase of the research, reports from resource professionals who had experienced some time delay between their program experiences and the survey showed positive developmental changes. It may be that young people need time, reflection, and follow-up activity in order to recognize and assimilate the positive influences of a nature service or work program.

Nature and Positive Psychological Development

Positive psychology is an emergent and rapidly developing field of social science (Snyder and Lopez 2002). Most research on youth development during the 20th century focused on abnormal and dysfunctional behavior, yet only 20 to 25 percent of adolescents exhibit serious problems. Positive psychology affirms that most young people are not troubled, yet may need help and suitable environments to attain their greatest personal potential.

Nature experiences provide profound and sometimes unexpected benefits for youth. Recent studies hint at the importance of nearby nature in cities. A series of studies were conducted by the University of Illinois to test the effects of nature contact on young people in inner city settings. Attention Deficit Disorder symptoms are relieved in children after spending prescribed amounts of time in green spaces. The greener the setting, the more the relief. By comparison,

¹ Louv, Richard. 2005 Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder. Chapel Hill, NC: Algonquin Books.

² funded by the USDA Forest Service, on recommendation of the National Urban and Community Forestry Advisory Council

³ full report available at <http://www.cfr.washington.edu/research.envmind/civic.html>

activities indoors such as watching television or outdoors in paved, non- green areas leave ADD children functioning worse (Taylor et al. 2001).

A second study showed positive relationships between girls and greenery. Girls with home views of nature score higher on tests of concentration and self-discipline, and score lower on tests of impulsivity. Boys displayed no detectable relationship between nature near home and the forms of self-discipline tested (Taylor et al. 2002).

Service Learning Benefits

A recent survey conducted on behalf of the National Youth Leadership Council, reports that service-learning has a strong impact on the youth-adult transition (Harris Interactive 2006). The study examined service-learning's potential to ease adolescent transition to adulthood, and showed its positive benefits. The data show that U.S. adults who engaged in service-learning during their school years were more likely than the rest of their peers to:

- Be politically and socially connected to their communities
- Serve as role models for young adults
- Understand the importance of lifelong learning
- Attain a higher level of education
- Engage in service

Data were obtained across a variety of service-learning situations, so it is uncertain as to how nature-based experiences may compare within these findings. Positive possibilities can be tested with future research.

Urban Nature Stewardship – The Potential

Positive Youth Development (PYD) programs have rapidly emerged in many U.S. cities to help youth become healthy, effective, and productive members of society. Recent studies and resulting publications provide guidance for positive development of urban youth (Eccles and Gootman 2002).

There is a notable absence in the development and program literatures – studies of the effects of city green and urban forest experiences. We know much about therapeutic effects of wilderness experience. Studies on youth benefits of wilderness and outdoor adventure programs note that there are numerous positive effects, with improvements demonstrated in academic performance, leadership traits, self-concept, personality development, interpersonal skills and adventuresomeness (Hattie et al. 1997).

Thousands of urban youth participate in urban forestry and urban greening projects in cities throughout the U.S. Yet little is known about either the short term or long term effects of such experiences on a group of people who represent the future of our nation. There has been relatively little study about outcomes of youth and urban landscape experiences. Program leaders tell many inspiring stories of individual learning and growth. Such benefits are generally assumed to occur by the organizations or agencies that sponsor youth and urban resources programs.

Few, if any, studies have directly measured the therapeutic or developmental benefits for inner-city youth of urban forestry project experience. Research is needed to systematically quantify outcomes, so that effects are better understood and programs can be conducted in ways that best serve their youth participants.

Stewardship and Career Choice

Positive development and connections to nature have substantial consequences for individuals and for society. Committed and knowledgeable professionals are needed if the city, state and nation are to successfully move to sustainability. Career choice is rarely an abrupt decision, nor the outcome of a momentary, unique opportunity. For many people, a career is the outcome of a sequence of interests, influences, and educational experiences. Other science-based professions, such as engineering and medicine, have pursued the issue of career choice extensively, finding that choices about majors during postsecondary education and career are formulated by early socialization and behaviors that emerge in the adolescent years (Leslie et al. 1998). The most significant influences leading to career choice in natural resources are experiences of natural areas, parental influences and organizations (Chawla 1999). Urban forest stewardship programs could be part of an important “life sequence” to career choice.

Conceptual Approach

The project was a series of human dimensions explorations, guided by concerns about adolescent youth and urban nature. In each of the research phases careful attention was given to use of conceptual and theoretical principles of youth development from the social sciences. While the direct purpose of this research was to evaluate youth in their stewardship activity, a broader purpose was to contribute to better understanding of youth development.

Advances in a field are best achieved by measures constructs that address the full scope of the phenomena of interest, and are rooted in theories that specify their sources, mediating processes, and multiple effects. Theory-based constructs generate results that can enhance understanding, and provide helpful guidance for program development.

Many youth and nature programs have conducted evaluations, and many have used one-time, ad hoc measures, developed to reflect the unique circumstances of a particular program. In order to gain the attention of the professionals who work with youth an effort was made to address youth and nature benefits that are associated with broader theories and constructs of youth development.

Many programs aim to aid youth in order to achieve positive development and personal fulfillment. Content and activities include computer technology labs, community art, sports teams, and activity-based organizations, such as 4-H and Girl or Boy Scouts. For each of these there are major constructs that transcend the literal activities (Stukas et al. 1999). Adolescents who participate in youth programs may show gains in three major domains; each was explored in this research:

- Self-Enhancement (self-esteem, personal efficacy, and confidence)
- Understanding of Self and World (personal growth, development of moral reasoning, empathic understanding, and attitudes toward diverse groups in society)

- Value-Expression (expression of humanitarian and prosocial values through action and plans for future involvement in community service)

Research Program

This report describes a research effort to better understand the potential developmental benefits for youth of urban nature stewardship activities. Non-profit organizations (NPOs), government agencies and social scientists partnered to do the research. The project was based in the Pacific Northwest, but the intent of the project was to address human populations and youth program situations that are typical throughout the United States. This was done in two ways. First, youth oriented urban greening programs from across the U.S. were included in the project. Also, the project was conducted in several phases, using a comprehensive program of qualitative and quantitative methods to measure youth benefits and positive development. Measures that have been developed in both environmental psychology and “mainstream” youth psychology were used (Hoge 1999). Measurement techniques that have been tested for reliability and validity were used whenever possible.

The U.S. census projects that by the year 2050 minority peoples will make up half of the nation’s population. Asian and Hispanic populations are expected to triple. The minority youth of today will become the community leaders of tomorrow. This project particularly focused on young people of color.

The research was conducted primarily by two collaborators. EarthCorps is a non-profit organization, with the mission to build global community through local environmental service. EarthCorps was the lead in research implementation, using staff to conduct the field procedures. Dr. Kathleen Wolf of the University of Washington was the science collaborator, and prepared the data collection instruments, analyzed data, and drafted research findings. Both collaborators are conducting outreach and technology transfer.

Four project activities are reported in the sections that follow.

Literature Review: The first activity was an extensive literature review that addressed two topics. Of primary interest for the entire research program was the effect of nature experience on self-development in youth, thus a review of youth development and benefit studies was done. The review assessed the science of abnormal youth psychology, positive youth psychology, and youth benefits from wilderness therapy and outdoor adventure experiences (such as Outward Bound). Another interest was the role of adolescent nature experiences on adult career interests. Studies about precursors and influences on science and natural resource choices were reviewed. Findings are integrated within the three research sections. Literature reports are condensed; full literature reviews are found in appendices.

Professional and Youth Interviews: Data collection started with two sets of interviews in spring 2005. Urban youth, of underserved communities within Pacific Northwest cities, and ranging in age from 12 to 21 years, were interviewed to determine the scope and perceptions of their experiences with urban forestry work. Twenty six youth participated in interviews. Also, to understand career choice and long term personal development implications, interviews were conducted with minority resource professionals about their adolescent nature experiences.

Twenty seven professionals from around the U.S. participated in 30 to 60 minute interviews. The interviews were intended to provide preliminary insights on both near and long term outcomes of urban youth and nature work experiences. Interview results, reported in Section 2, were integrated with the literature review to become the foundation for later quantitative evaluations.

Youth Field Surveys: In the second phase of data collection, described in Section 3, standardized instruments were constructed and pretested. These instruments are similar to those used in other scientifically respected youth evaluations, but applied in a new context. The measures surveys were administered as pre and post-tests to 119 youth participating in eight youth programs in major cities in the United States in summer 2005.

Second Youth Field Surveys: Though not intended at the beginning of the project, a second phase of survey work was done (reported in Section 4), as the results of Phase II came as a surprise to both program and science partners. A modified version of the survey procedures were repeated in summer 2006 with youth in the Seattle area, and included reflection exercises.

Youth and Professional Interviews

One potential effect of youth participation in urban resource programs is job and career choice. Under-representation of women and minorities in urban forestry and natural resources careers is a problem of national concern.

Due to the research design it is impossible to make conclusions about the causal relationships of youth nature-based experiences and adult career choice. Yet certain insights emerged from this exploratory set of interviews and surveys that may guide future research.

First, professionals' responses suggest the importance of ongoing, multiple nature experiences through adolescence, rather than a single encounter. The remembered experiences are quite varied, including a combination of sensory, emotional, cognitive and behavioral modeling influences.

Second, it seems that influential experiences are more formal in structure and content, provided guided learning and competence in an environmental endeavor. Learning combined with achievement was fondly remembered. Key adults served as mentors and experience guides.

Social dynamics with peers were quite important in the memories of youth and adults. Interestingly, youth focused on social aspects, with fewer reports of the value of learning. Are future professionals those who pursue and enjoy learning opportunity more within a short-term program? Or were programs of the past more oriented to education as compared to field tasks and programs?

Why was there little change detected? While the results from youth surveys showed little change, interviews with professionals indicated that youth experience was significant. There are many mediating conditions that could explain the differences: maturity, career success providing positive developmental feedback, or again, self-selection. Only a long-term longitudinal study could tease out the causal factors. Nonetheless interview responses tell us that the professionals as young people enjoyed a series of nature experiences, of divergent character and purpose.

Rather than focusing on a solitary program experience, program planners may need to form coalitions of organizations that comprehensively design and provide a lifecycle progression and range of outdoor nature experiences. Perhaps a “nature curriculum” is a pre-school to college range of experiences that respond to the developmental pathways of youth. Just as there is now recognition of multiple intelligences (Gardner 1985), so might there be multiple pathways to nurturing and encouraging greater connectedness to nature as a person transitions from childhood to being an adult. How might the nature programs we studied be “bundled” with other programs to offer a sequence of nature encounters? Despite the limitations of these findings and the narrowness of this sample of adolescents, the results indicate we need better understanding of the role of urban nature-based programs in positive youth development.

In summary, the interview results speak to how programs are developed and offered to youth, and how they might reveal and nurture interest in natural resources careers. The importance of multiple programs suggests that organizations should take a broader view of their programs to assess their own program within a context of multiple age and activity focused experiences across the teen years. Can the range of experience needed to nurture nature in youth be provided by a single organization? Probably not. A regional coalition of organizations that offer an interlinked series of programs, including mentored learning, may more effectively reach and benefit young people. Results also suggest that experiences in late high school may shape career interest more directly.

WHAT DID WE LEARN?

Looking Back

One research purpose was to learn about the effect of youth in urban resource programs and career choice. Under-representation of women and minorities in urban forestry and natural resources careers is a problem of national concern. We explored the effects of youth nature experiences for adult professionals who now work in natural resources (with a focus on women and minority individuals).

Due to the research design it is impossible to make conclusions about the causal relationships of youth nature-based experiences and later career choice. Yet certain insights emerged from the exploratory interviews with resource professionals and youth who have recently completed a stewardship program.

First, professionals' responses suggest the importance of ongoing, multiple nature experiences through adolescence, rather than a single encounter. The remembered experiences are quite varied, including a combination of sensory, emotional, cognitive and behavioral modeling influences.

Second, it seems that influential experiences are more formal in structure and content, provided guided learning and competence in an environmental endeavor. Learning combined with achievement was fondly remembered. Key adults served as mentors and experience guides. Social dynamics with peers were quite important in the memories of youth and adults. Interestingly, youth focused on social aspects of their recent programs, with fewer reports of the value of learning. Are future professionals those who pursue and enjoy learning opportunity more within a short-term program? Or were programs of the past more oriented to education as compared to today's field task programs?

Some people can recall a pivotal experience that shaped who they chose to become. But our data show that a single service project during adolescence may not be enough to prompt a sense of life commitment. Rather, multiple and diverse experiences, in total, may become a valued and insightful base for later career decisions.

What Do We Do Now?

Surveys were administered as pre and post tests, and based on anecdotal reports from program leaders across the country; some level of change in self development was expected. Surveys included measures for these developmental concepts:

- Self-Concept
- Self Efficacy
- Environmental Identity
- Environmental Concern
- Civic Engagement

Pre and post test results are shown in Figure 1. Why was little change detected? The range of scores on these measures was well within the means from prior studies. Youth who were developmentally “stable” may have self-selected to participate in the programs, or may have chosen to participate because they already had a commitment to environmental stewardship. It may be that despite the stereotypes about volatile teens, core developmental traits are remarkably resilient, and it takes more than a few week long program to induce change of self.

Nonetheless, interviews with professionals indicated that youth experiences were considered significant. There are many mediating conditions that could explain the differences between outlooks: maturity, career success providing positive developmental feedback, or again, self-selection. Only a long-term longitudinal study could tease out the causal factors.

The professionals as young people enjoyed a series of nature experiences which were of divergent character and purpose. Rather than focusing on a solitary program experience, program planners may need to form coalitions of organizations that comprehensively design and provide a lifecycle progression and range of outdoor nature experiences. Perhaps a “nature curriculum” is a pre-school to college range of experiences that respond to the developmental pathways of youth.

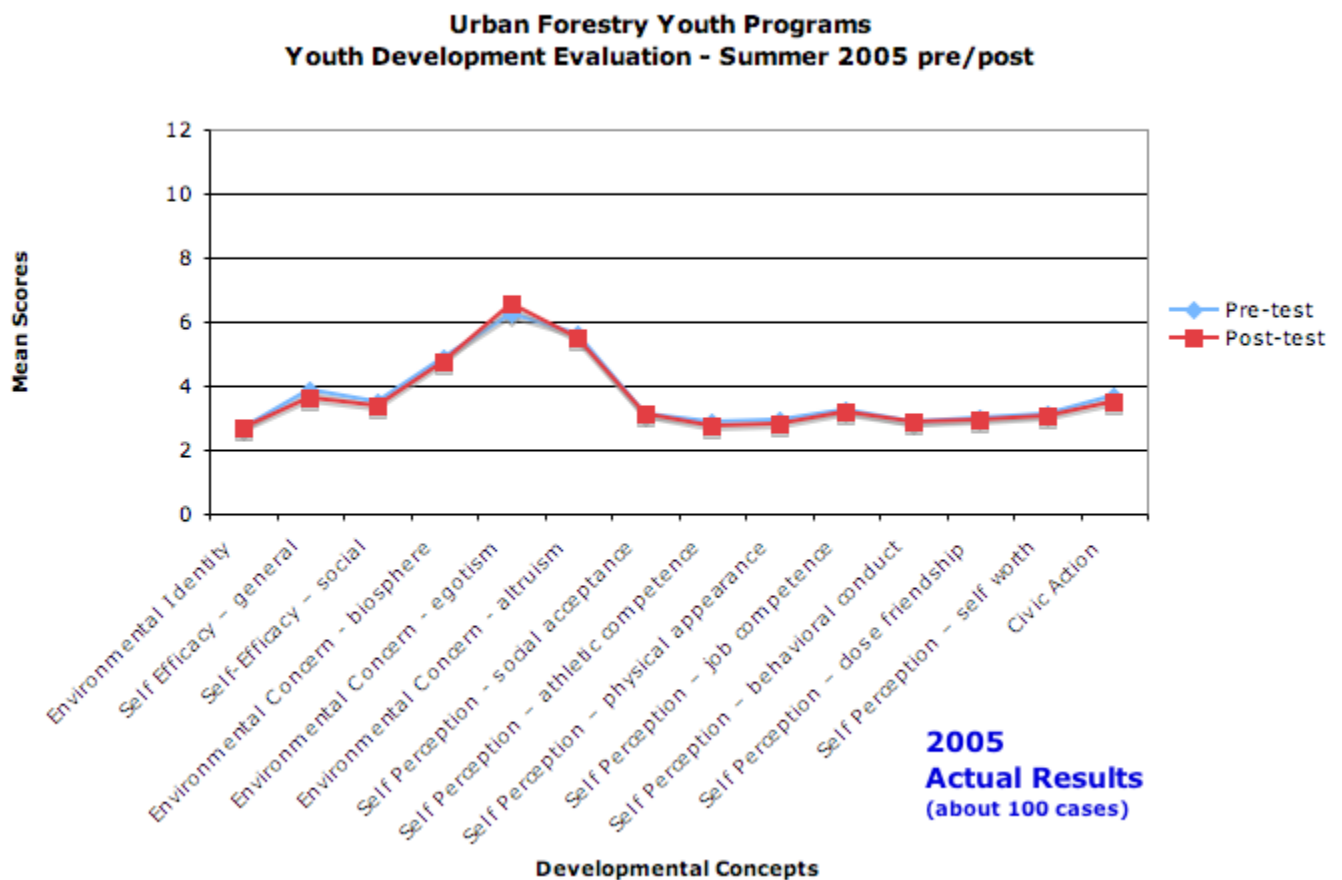


Figure 1: Results of youth development surveys

And to focus on career choice, results suggest that experiences in late high school may shape career interest more directly.

Just as there is now recognition of multiple intelligences (Gardner 1985), so might there be multiple pathways to nurturing and encouraging greater connectedness to nature as a person transitions from childhood to being an adult. How might the nature programs we studied be “bundled” with other programs to offer a sequence of nature encounters? Despite the limitations of these findings and the narrowness of this sample of adolescents, the results indicate we need better understanding of the role of urban nature-based programs in positive youth development.

The survey testing was an effort to see the “real time” influences of nature stewardship work on youth development, but revealed little change in self. Meanwhile the interview results speak to how programs are developed and offered to youth, and how they might reveal and nurture interest in natural resources, including later career choice. The importance of multiple programs suggests that organizations should take a broader view of their programs to assess their own program within a context of multiple age and activity focused experiences across the teen years. Can the range of experience needed to nurture nature in youth be provided by a single organization? Probably not. A regional coalition of organizations that offer an interlinked series of programs, including mentored learning, may more effectively reach and benefit young people.