Beyond Trees: Growing International Stewards in Nontraditional Ways

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Bardekjian, Adrina C.; Paqueo, Liza. 2019. Beyond trees: growing international stewards in nontraditional ways. In: Campbell, Lindsay K.; Svendsen, Erika; Sonti, Nancy Falxa; Hines, Sarah J.; Maddox, David, eds. Green readiness, response, and recovery: A collaborative synthesis. Gen. Tech. Rep. NRS-P-185. Newtown Square, PA: U.S. Department of Agriculture, Forest Service: 292-305. https://doi.org/10.2737/NRS-GTR-P-185-paper20.

Us, growing stewards
Urban forests: beyond trees
Hope for the future.

More than half of the world's population lives in urban areas. By 2050, that number is expected to increase to at least 70 percent—and the densest of these areas will be concentrated in Asia and Africa. Cities around the world are feeling the strain of increasing population density. Unplanned urban growth has placed heavy pressures on resources and infrastructure. This intensification has led to land use and tenure issues, rising poverty and unemployment, an increasing gap in wealth distribution, and further marginalization of disinvested populations.

Approximately 1 billion urban (and peri-urban) dwellers live in informal settlements or slums (Ooi and Phua 2007) with no access to basic services, green spaces, food security, and safety. In addition, many of these communities have become more vulnerable to destructive natural and climate-related disasters, diseases, and other ecological and social stresses.

Natural resource managers are also facing a widening set of challenges. For example, cities account for 70 percent of global energy use; energy costs are skyrocketing (United Nations University, n.d.). Many cities are encroaching into surrounding wildlands, threatening biodiversity (UNEP 2005). Conversely, wildland fires are destroying nearby communities (USDA Forest Service, n.d.). There is also a growing disconnect between natural resources and communities, particularly the current and next generations of young people. Nearly 2 billion of the world's youth live in developing countries, and most of that age group live in cities (United Nations 2016). By 2030, 60 percent of urban residents will be under the age of 18 (Grant 2012). Lack of accessible green spaces in many cities around the world have led to unmanaged recreation, violence and health challenges such as asthma among young people. In addition, this block of young people is often excluded from many civic engagement and participatory processes. As a result, there is an opportunity to grow leaders and stewards in communities.

Hope to mitigate these challenges may lie in urban natural resources and their sound and sustainable management. The public and private sectors are shifting gears. Many cities in the global north (e.g., Chicago, Louisville, San Francisco, Portland, Dallas, Toronto, Montreal, Winnipeg, and Vancouver), are harnessing the power of *green*: green thinking, green education, green infrastructure, and green livelihoods. The idea growing in cities worldwide is that by developing urban natural resource programs, one can hope to mitigate or decelerate many of the effects of rapid urban intensification and population growth. Natural resource managers, nongovernment organizations, and

community-based organizations realize (or are beginning to understand) the importance of improving lives in cities by harnessing ecosystem services—including their economic, socio-ecological, and health benefits—derived from trees, wetlands, parks, and other green spaces.

Green infrastructure is one dimension in a basket of solutions needed to address the pressures associated with urban population growth. The dominant narrative in urban forestry focuses on trees and technical applied practice. To build democracy, neighborhood pride and unity, ecological literacy, and market innovation, we need better, more transdisciplinary engagement among professionals who can collaborate across multiple scales—in other words—beyond trees! Engaging communities through stewardship, partnership building, and conservation education are methods employed to do this.

Additionally, nontraditional thinking and partnership building can help buttress any urban related programs. It can leverage more resources to maintain these programs over a long period of time and create needed social investments to carry the new green ethos into the future. Collaborating with faith-based organizations, community activists, populations with special needs and disabilities, first responders, disaster relief managers, and other nonenvironmental based groups are some examples of nontraditional partnerships at the local level. At the global scale, creating a worldwide network of practitioners is another way.

The USDA Forest Service International Programs and its partners understand the power of building networks and working collaboratively across landscapes and borders. The United States, Canada, and Mexico have worked together for almost 60 years on advancing sustainable forest management through the North American Forest Commission (NAFC), one of six regional forestry commissions of the United Nations Food and Agriculture Organization. The three countries carry out this work via several technical and topical working groups, including the recently implemented Urban Forest Programs Working Group. Through NAFC, the forest management agencies are able to share tools, information, and best practices for urban settings across the continent and learn from other forestry commissions.

Additionally, International Programs has, for nearly 20 years, brought together natural resource professionals from around the world to participate in intensive and interactive seminars, each of which focuses on a specific topic. The idea is less about highlighting what the United States is doing, but more on building a growing network of practitioners.

Currently, there are 10 annual seminars. The topics covered are: urban forestry, landscape restoration, watershed management, livestock grazing, climate change, protected areas, sustainable tourism, disaster management, and mining. A 2016 meeting of the Urban Forest Programs Working Group of

NAFC led to the development of the International Seminar on Urban Forestry[3] a year later (USDA Forest Service 2017). This pilot seminar, titled "Beyond Trees," took place in Chicago, IL, and New York City, NY. Nineteen participants from 16 different countries (Armenia, Canada, Mexico, Georgia, West Bank, Jordan, Morocco, Uganda, Philippines, Bhutan, Ethiopia, Jamaica, Colombia, Malawi, Tanzania, and Dominican Republic) spent 2 weeks examining various methodologies, tools, and partnerships (Bardekjian, 2017, 2018; Photos and videos 2017; Video introductions 2017). While the agenda included exploration of urban forestry practices and tools as such i-Tree and the Stewardship Mapping and Assessment Project (STEW-MAP), it focused mainly on how nontraditional partnerships and efforts can be effective in improving lives in urban communities.

Takeaways from the USDA Forest Service International Programs

As past participants agree, there are many lessons that can be learned from the various seminars offered by the Forest Service. From the 2017 urban forestry testimonials, the main takeaways included: 1) engaging communities where they live to foster youth development and community stewardship; 2) facilitating access to food, education, and community greenspaces; and 3) collaborating locally and globally to achieve common goals.

Engaging Communities Where They Live to Foster Youth Development and Community Stewardship

As a cornerstone for overall programming, engaging communities where they live highlighted the need for better environmental awareness and integrated education programs at the local level. Environmental programs that considered the social needs of local youth were particularly represented during the Urban Forestry Seminar. These narratives are rarely woven together in dominant urban forestry and urban ecology discourses. Young people form a majority of the demographics in many cities around the world. One way to ensure the long-term sustainability of urban natural resources is by growing stewards through youth and community engagement. Seminar participants observed the different types of youth related efforts.

Nontraditional ways of engaging youth can be successful gateways into growing future stewards. One of International Programs' partners, Rocking the Boat, a nonprofit organization located in the South Bronx, was originally founded to encourage youth in one of New York City's most under-resourced communities to build boats and eventually row them on the

3. Now called International Seminar on Urban Forestry and Community Engagement.

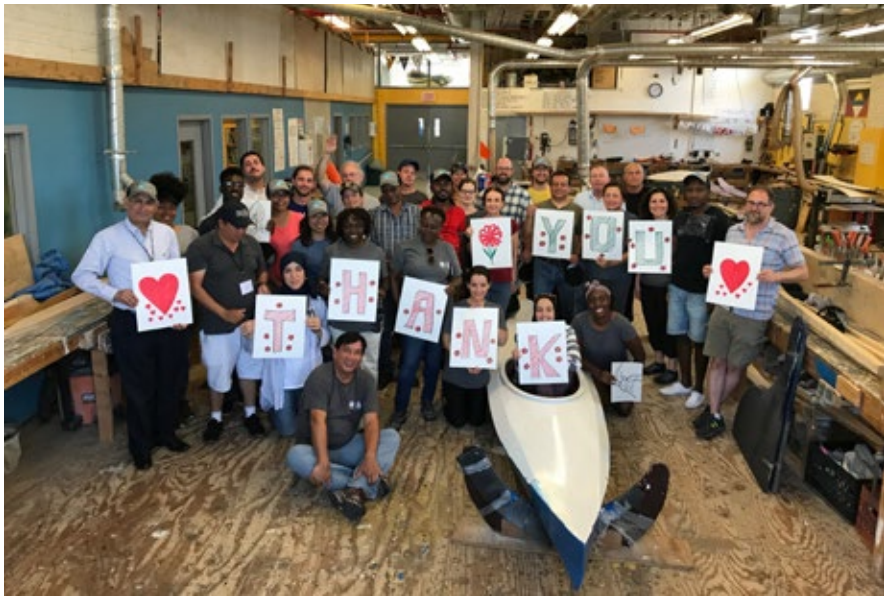

Figure 1: A group at Rocking the Boat, in South Bronx, with thank you sign.
Photo by Pamela Foster, used with permission.

Bronx River (Figure 1). The organization mentors the students to be self-confident, to problem-solve, and to become aware of the ecosystem around them. As a result, the unintended consequence of this group has been to develop not just robust environmental activities, but also environmental students and leaders. Seminar participants had an opportunity to have young people who have gone through the programs at Rocking the Boat be the docents for a day out rowing on the river.

International Programs also helps raise awareness among students and teachers in Chicago's underserved areas. At Seward Elementary Communication Arts Academy, seminar participants saw first hand how bringing wildlife icons, such as raptors, directly to the school gymnasium provided an inspiring opportunity to launch a lively discussion about habitat, behavior and sustainable environments—the physical proximity left an impression on the young students growing up in a community prone to gang violence.

Additionally, engaging the broader community is imperative to maintain the connection to land and people—and hope. The fortitude of community stewardship was best exemplified in Gary, IN. Participants experienced the destitute aftermath of a once industrialized city and how it negatively impacts the social succession of a community once industry departs. Participants learned how the City of Gary is stabilizing neighborhoods through community green infrastructure plans, accessible waterfronts, and historical preservation and nature tours. The long-term commitment and passion of some of the

Figure 2: A visit to the Grange rooftop garden in New York City.
Photo by Pamela Foster, used with permission.

volunteers focused on maintaining housing and beautifying neighborhoods through creative methods such as painting boarded-up homes.

Facilitating Access to Food, Education, and Community Greenspaces

Many people live in food deserts where access to fresh food is scarce. As the relationship between public health and urban greenspaces becomes more accepted and understood, urban residents need access to resources. Urban agriculture plays an important role in connecting communities to nature and getting people to think about where their food is grown. At Brooklyn Grange Rooftop Farm in New York City, participants discussed the necessity of educating inner city youth about their physical health and nutrition that can impact mental health as well (Figure 2). SWALE, New York City's floating food forest, is an excellent model for education projects about permaculture (Figure 3). Built on a repurposed barge, the SWALE garden serves as an outdoor mobile classroom to raise awareness about food security.

Access to education is too often a privilege that some communities do not have. Stewardship begins with awareness and a kindling of interest. In New York City, seminar participants learned about providing access to youth across all income strata. Ten years ago, International Programs began a partnership with the Cell Motion Biobus, which brings science to the five boroughs of New York City. Children who would otherwise have little access

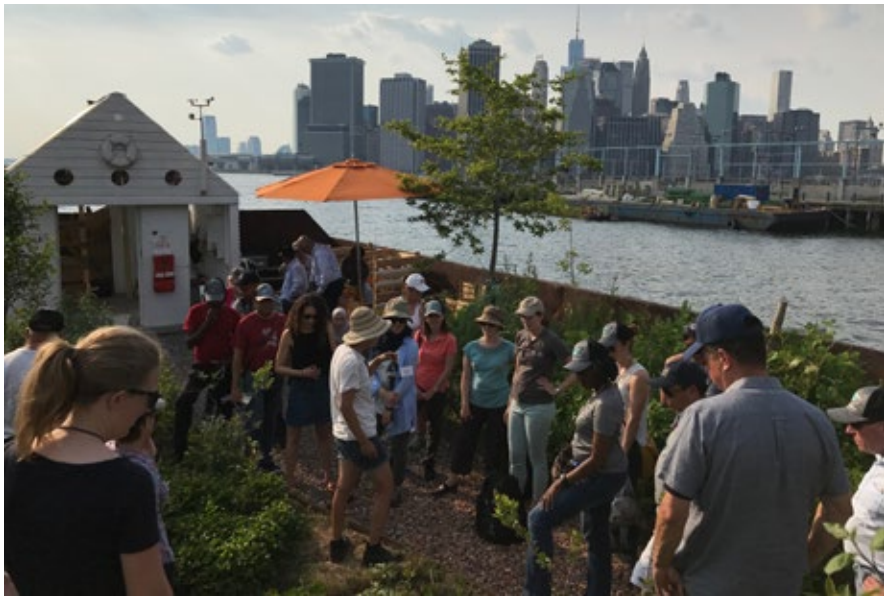

Figure 3: Built on a repurposed barge, SWALE floating food forest serves as an outdoor mobile classroom to raise awareness about food security.
Photo by Adrina C. Bardekjian, used with permission.

to laboratory tools and enriched scientific engagement are encouraged to explore and learn within the safe, hands-on confines of the bus. As a result of this partnership, the Biobus and International Programs worked with the Princess Basma Youth Resource Center in the Hashemite Kingdom of Jordan to create a similar mobile science laboratory that would focus on environmental awareness. Led by two female scientists, one of who shared her experiences at the Urban Forestry Seminar, the bus, baptized *Eureka!*, provides conservation science curricula and experiential learning to students across the Kingdom. To date, this bus has reached tens of thousands of youth, nearly half of which have been displaced from their homes in Syria and Iraq.

Education for underserved communities is integral for public well-being. This includes engaging those whose voices are often overlooked in environmental science discourses. Being able to reach people in ways that resonate is key for sustainable healthy communities. Creative pathways can be employed to include everyone in the process of conservation. In Chicago, for example, the Forest Service works with El Valor—a local Mexican-American community organization with programs focused on engaging adults and children with cognitive and physical disabilities—to raise environmental awareness. Integrating symbols that tie cultural connections to land stewardship is a cornerstone of the El Valor programming for underserved and challenged communities. For decades, the International Programs office

has highlighted the life cycle of the monarch butterfly and encouraged the community to raise this charismatic species. The monarch butterfly is used as a cultural metaphor depicting migration and the long journey home. As a result, thousands of families are now valuing the importance of small pollinator patches of green and becoming more aware of the nature in their own backyards.

Access to greenspace facilitates community ties, awareness, and stewardship, and as such, community gardens play an important role in a healthy social ecology. In New York City, participants were introduced to Gardens Rising, a community garden coalition dedicated to building green infrastructure to reduce stormwater flooding on the Lower East Side. Community gardens offer a haven for shared assembly, a place of learning and access to environmental health benefits. Participants had the opportunity to discuss with the coalition the variety of challenges that have arisen, including threats of increased development by the City, distribution of water resources, and maintenance and litigation measures due to competing interests.

Collaborating Locally and Globally to Achieve Common Goals

Across the United States, there are over 130 million acres (53 million ha) of urban forests. As more people migrate into cities, the need to conserve urban and peri-urban green spaces for the benefits they confer also grows. Worldwide, the Forest Service works with local government, private and non-governmental organizations, community groups, educational institutions, and nontraditional partners to manage and care for urban forests for their intrinsic environmental services—such as water, air, habitat—but also for their social and economic values. Specific challenges to natural resource management and urban communities identified by participants included:

- Engaging governments and communities in urban forest stewardship and education within cities that have competing priorities such as poverty and political unrest.
- Being inclusive with respect to diverse cultures, ethnicities, religions, and economic backgrounds.
- Engaging people that have limited access to education.
- Moving away from science as an elitist activity or concept and making it accessible and fun.

- Understanding the similarities and differences among departments at various levels of government and learning from one another to bridge gaps.

To overcome these challenges and to move toward a healthy (global) society, both socially and environmentally, communicating locally and internationally to share knowledge will require multiscale network building.

Fostering nontraditional partnerships is an effective method to create stewards for land, water, food, and environmental sustainability. In addition to collaborating with social service agencies like El Valor, seminar participants were introduced to the notion of engaging faith-based organizations like Faith in Place and Sacred Keepers, to deliver environmental conservation programs by reaching diverse people of all faiths, ethnicities, and sexual orientations. At the root of Faith in Place is the belief that storytelling and the power of narrative connects people to people and people to nature. The underlying takeaway being that societal leaders need to be more attentive to the priorities of diverse communities and racial equity, and explore multiple avenues of entry into environmental conservation dialogues.

Another aspect of multiscale network building is to understand resiliency and adaptation in the pursuit of civic engagement. Communities are faced with multiple and diverse environmental and economic challenges and building social and ecological resiliency and preparedness helps mitigate fear in the face of adversity. In south Chicago, seminar participants were introduced to Jardincito—a community garden project fostering with environmental stewardship and resiliency against challenges of poverty and gang violence. One recurring question for participants here was, given that some communities have systemic challenges (e.g., poverty, violence, social unrest), what are the motivations for engaging neighborhoods in urban forest stewardship and education? Multiscale partnerships are one way to begin unpacking these concerns. In New York City, participants learned that land-use management is a three-way partnership between the USDA Forest Service, The Natural Areas Conservancy, and the NYC Parks Department. The success of numerous programs can be attributed to how public–private partnerships are developed to leverage resources and offer an equitable balance for both green and gray infrastructure.

Lastly, understanding civic capacity to build strategies for community development at the local level is imperative for effective engagement with natural resource managers, funders, policymakers, educators, stewardship groups, and the public. People can be positive agents of change through social, spatial, and temporal interactions that underlie community connectivity. Capturing these connections and motivations is a good place to start.

In New York City, participants learned about the STEW-MAP project, that captures stewardship information and indicators of social resilience such as place attachment, collective identity, social cohesion, social networks, and knowledge exchange. Mapping provides legitimacy to stewardship groups, without whom landscapes may not be sustained.

Discussion

To respond and be resilient to the pressures of urbanization, population growth, and globalization, countries would benefit from developing programs that are tailored toward cities, their residents, and natural resources. It is also important to integrate green infrastructure, green thinking, and green learning into urban planning, management, and education. One way to move forward on this avenue is through partnerships across all sectors (local, state, and national). Another way is through the dynamic exchange of ideas with organizations in other cities around the world.

For nearly 20 years, the Forest Service International Programs and its partners have built networks of professionals from all parts of the globe through its international seminars. The cornerstone of the International Seminar on Urban Forestry is transdisciplinary learning through international collaboration. Participants have the opportunity to meet people from around the world and become exposed to social issues, environmental challenges, and opportunities to which they would normally not have access. They are also given various seeds of thinking and tools that can help develop a rich urban forest program—from tools that can quantify the ecosystem benefits of urban trees, to ways to engage future stewards of the urban environment.

Collective challenges to urban natural resource management that were identified by participants, included the lack of awareness and urban forestry education programs in their respective countries; disconnect between research initiatives and applied practice; lack of policies incorporating urban greening in infrastructure; increased residential and commercial development; absence of strategic approaches at federal and regional levels; lack of knowledge exchange between communities, across professions and among lawmakers; and lack of human and fiscal resources.

Like other workshops, the Urban Forestry Seminar has proven to be forward thinking and innovative with the hope that an international cadre of stewards deepens their own learning and continues to reach out to teach to others what they have learned. Participants range from early to mid-career decisionmakers, in positions able to reflect the changes needed for sustainable futures (government officials, community leaders, natural resource professionals, NGO managers, and practitioners). All participants

stated that they endeavor to share takeaways with community leaders and colleagues in their respective organizations and through professional social networks.

The implications of this can be seen in the action plans being undertaken and executed in the represented countries once participants return to their respective home. Examples of action from participation in the Urban Forestry Seminar are seen in Mexico, the Middle East, Philippines, and Canada.

Over the past 30 years, Mexico's population has nearly doubled, with urbanized areas increasing sixfold. Mexico City, the capital, is currently the fifth largest city in the world by population. In an effort to promote smarter, green development, improve planning, and connect urbanized populations to nature, the USDA Forest Service, in collaboration with the Davey Institute, has helped to develop i-Tree Eco for Mexico. This open-access tool provides local data that allows urban planners, land managers, and citizen scientists with the ability to quantify pollution reduction from trees, estimate their economic value, calculate stormwater absorption and cooling costs, and much more. After returning home from the seminar, the Mexican participant secured funding from the Mexico City government to conduct a pilot study using i-Tree Eco in reforested areas around the city. Other cities and municipalities throughout the country also hope to use the tool to promote science-based urban planning as well as engage communities.

The Palestinian Child Arts Center (PCAC) is one of the Forest Service's long-standing partners in the West Bank area of the Israeli-Occupied Territories. Through year-long engagements with youth, summer camps, and leadership opportunities, this organization works to utilize environmental education to increase youth awareness of the environment in Palestine, and to encourage positive and future-oriented thinking. Comprehensive exploration of environmental impact on people's livelihoods, and vice versa, led to unique and innovative solutions to complex multifaceted problems. A chief takeaway for this participant was the attention that government and community organizations placed on the environment. This indicated that the environment was not just for one entity to own, manage, or enjoy, rather it took a collective effort from the smallest local community, to the federal government to care for, protect, and preserve natural resources. This participant also appreciated the use of repurposed and reconstructed structures such as green roofs, urban garden plots, and vegetated old railroads, to transform often degraded parts of cities into enjoyable, livable landscapes. The hope is to create community gardens as a means to provide alternative recreation and enhance local livelihoods.

In the Philippines, the City of Puerto Princesa, the capital of the island of Palawan, is rapidly growing. Moreover, it has significant forestry resources and

a strong environmental ethic. Working with the U.S. Agency for International Development's urban program, Strengthening Urban Resilience for Growth with Equity (SURGE), the USDA Forest Service International Programs continues to work with the city on sustainable and inclusive economic growth. Specifically, it is supporting the local government in applying i-Tree tools. The local government official who represented the city at the seminar inspired more interest and commitment to urban forestry issues and to exploring the use of some of the models and tools learned at the seminar to encourage community engagement.

In Canada, leadership on urban forest stewardship is community driven through actions of nongovernmental organizations. Tree Canada, a national NGO dedicated to urban forestry, is the Secretariat for the Canadian Urban Forest Network (CUFN) and Strategy (CUFS).[3] The CUFS provides a guide for urban forestry activities in Canada through its five working groups: National Infrastructure, Communications, Research, Techniques and Technologies, Professional Development. In the iteration of the guide prepared for the 2019–2024 term, the strategy has been revised to be more socially inclusive based on the experiences of the Canadian participant at the seminar. These include advocating for alternative modes of education and creative communications, incorporating more inclusive community engagement strategies for long-term volunteer commitment, actively broadening the multidisciplinary Canadian Urban Forest Network to reach audiences that are currently under-represented, and encouraging the Canadian Forest Service to develop urban forest policies and mandates.

Despite the successful seminar model of bringing people together to foster an international learning commons, the main questions that pervade include: How do we move forward into the next decade to ensure that cities are becoming more resilient? What can we do to not to be outpaced by urbanization trends? We need to consider the importance of integrated cultural connections to nature and the diversity of ecological and social histories and legacies that have impacted land succession. The impact of these changes are embedded in the social consciousness of communities. This raises question about equity and power and how these issues underlie land use, ownership, and governance. As such, there is a need to embrace transdisciplinarity in how we live, work, and play.

The Forest Service International Programs offers participants an opportunity to learn about diverse points of view in environmental discourses—in this case urban forestry and stewardship. A key takeaway from the seminars is that such transdisciplinarity can lead to unexpected outcomes, and perhaps better than that which was originally intended.

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