

## Northern Research Station

# Current Urban Field Station Topics

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## STEW-MAP: Amplifying the Power of Urban Environmental Stewardship Groups



*STEW-MAP helps city agencies work with stewardship groups to protect and maintain Brooklyn's Greenpoint neighborhood. (Photo courtesy of Daniel Avila NYC Parks.)*

Perhaps it's a sign of the times that a Forest Service research group is on the cutting edge of harnessing the power of urban environmental stewardship groups. More than 80% of the nation's population lives in urban areas, and many cities are rapidly expanding into wildland and rural areas. These urban residents have demands and desires for quality local environments, such as trees and vegetation, parks, greenways, and waterfronts — all of which are part

of the “urban forest” that the Northern Research Station studies and that the Forest Service sometimes manages. It's also no mere coincidence that much of this work has come out of New York City, where in recent decades people have come together to care for the landscape following terrorist attacks and a devastating hurricane, not to mention slower-moving urban challenges related to budget restrictions and aging infrastructure. As New York

### SUMMARY

In response to urban issues such as urban growth, budgetary pressure, and deteriorating infrastructure, researchers at the Northern Research Station in New York City have come up with a way to quantify, evaluate, and map community-level environmental stewardship groups. The project, which began in 2007, is called STEW-MAP, which is short for Stewardship Mapping & Assessment Project. Urban land managers are increasingly using the approach, which has been implemented in U.S. cities from New York to Los Angeles and overseas in places such as Colombia, France, and the Dominican Republic. The basis of the program is a survey that helps to identify and evaluate stewardship groups that may include block associations, kayak clubs, tree-planting groups, nonprofit educational institutions and museums, and other groups that care for cities' natural environment and resources. By using STEW-MAP methodologies, urban researchers can identify gaps and overlaps, enhance citizen monitoring projects, promote broader public engagement, build partnerships between stakeholders, and promote efforts related to issues such as climate change adaptation and sustainability.

City native Theodore Roosevelt once said, “I am a strong individualist by personal habit, inheritance, and conviction; but it is a mere matter of common sense to recognize that the State, the community, the citizens acting together, can do a number of things better than if they were left to individual action.”

## THE SOCIAL COMPONENT OF URBAN ECOSYSTEMS

According to Lindsay Campbell, a research social scientist for the Northern Research Station in New York City, “When it comes to land management, there are multiple complimentary approaches needed in order to be effective at different times, on different sites, and in different communities. Sometimes you need to dig in the dirt and sometimes it’s all about organizing coalitions.”

To help facilitate this process, in 2007 Campbell and Erika Svendsen, another research social scientist with the Northern Research Station, helped develop the Stewardship Mapping and Assessment Project (STEW-MAP). STEW-MAP is a tool for evaluating and mapping civic stewardship groups involved in caring for “green infrastructure” in terms of their characteristics and relationships.

Since then, thousands of stewardship groups have been surveyed across the country and around the world. According to Campbell, “There are a lot of great things happening in every city, but not everyone knows each other and there’s no entity that keeps track of all the social resources and enables people to think about them as a system. Our

ecosystems have a social component to them. This tool helps us to understand that component and helps community groups to use it more effectively.”

## HOW STEW-MAP CAME ABOUT

According to Svendsen, “We knew that there were hundreds of community-based groups caring for the urban landscape, but their efforts were not always recognized or easily understood on a city-wide or regional level. We wanted to understand the broad spectrum of groups that were caring for the urban landscape and provide that knowledge to planners, policy-makers, and researchers as well as community groups and individual stewards who were working to improve their surroundings.”

To do this effectively, Svendsen and Campbell realized that a comprehensive citywide assessment was necessary, and they set out to find and contact a wide range of civic environmental stewardship groups in the city. “We ask how long they’ve been around, how many staff, members, and volunteers they have, what their budget is, what their area of focus is,” Campbell says, “and then we map and analyze the data for things like gaps, overlaps, and potential synergies. We can provide citywide agencies and nonprofits with information on where these civic groups are operating and what kind of work they’re doing. It can be helpful in recruiting, addressing needs, and finding solutions.”

STEW-MAP also helps the Forest Service and partners to adjust to



*New York managers thought about stewardship networks to identify an outreach opportunity: the Polish-speaking community in Brooklyn. (Photo: public domain.)*

changing conditions. “In the past decade alone,” Campbell says, “New York City has experienced natural events such as Hurricane Sandy as well as major policy changes. By repeating the STEW-MAP process over time, we expect to learn about changing patterns in civic stewardship in the context of these disturbances and shifts. And it’s important for land managers to be able to think of community stewardship groups as important social assets in the city as they adapt to change.”

## GRASSROOTS EFFORTS IN GREENPOINT, BROOKLYN

One organization that has used STEW-MAP is the New York Tree Trust, a program of the New York City Department of Parks & Recreation and the City Parks Foundation. Established in 1994, the Tree Trust’s goal is to protect and enhance New York City’s street, park and forest trees. One of the Tree Trust’s current initiatives, called “Greening Greenpoint,” is a 3-year project to transform the urban forest of Brooklyn’s Greenpoint neighborhood by planting new trees, creating retrofits to



the right-of-way, and engaging the public as stewards.

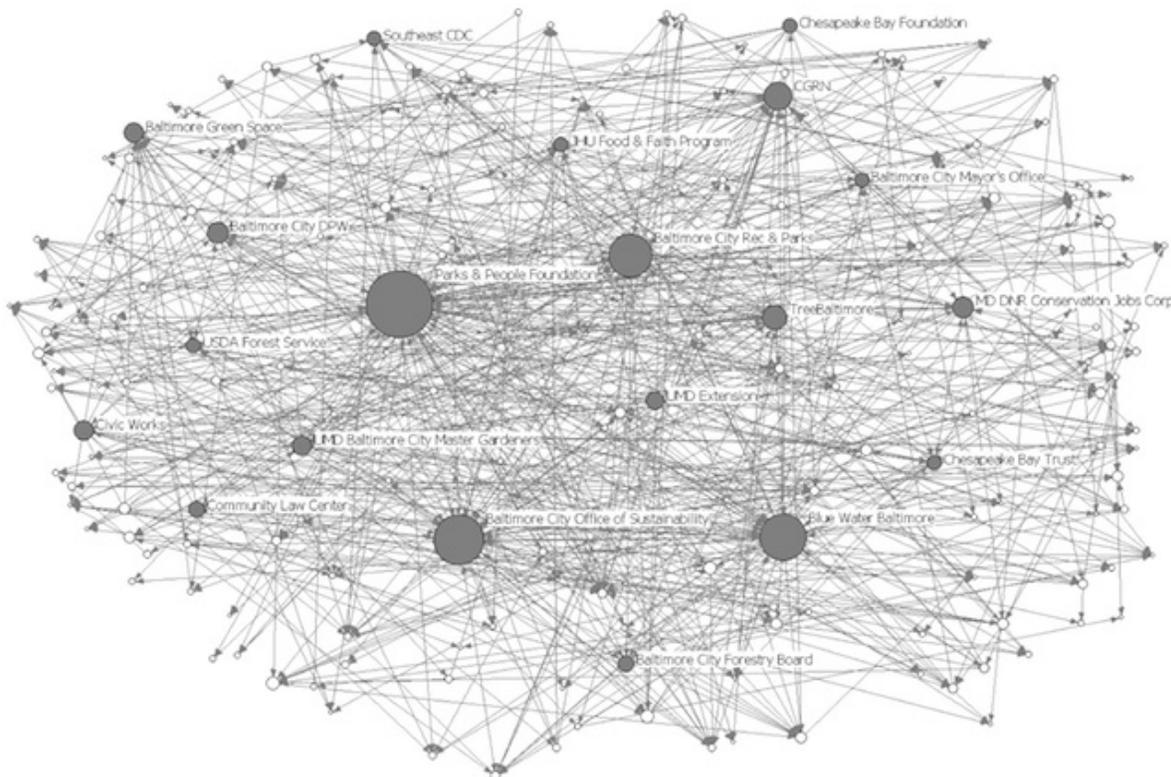
According to Sophie Plitt, the Greening Greenpoint project manager, STEW-MAP has helped tap into Greenpoint’s history of community-based stewardship. She explains, “Back in the 1990s there was a group of Greenpoint families that all went to a local park called McCarren Park. They all had kids of the same age and when the Asian longhorned beetle outbreak happened and the City started cutting the trees down, they got together and formed a formal group called Park Moms. They held rallies and got funding to replace the maple trees in the neighborhood. That group went on to be active even after the beetle issue was over and they’re still around today. STEW-MAP helps us learn about and engage with groups like these.”

According to Campbell, “Groups like the Park Moms amplify the impact and locally ground the approach of city-wide groups like the New York Tree Trust. They are crucial implementation partners and stakeholders in the greening of their neighborhood.” STEW-MAP has also helped Plitt to identify gaps in local stewardship communication, with the goal of connecting with urban residents who

want to help improve their community. She explains, “There’s a large Polish population in Greenpoint but the New York Tree Trust’s community outreach efforts are all in English. STEW-MAP helped us identify this issue and as a result we’re hoping to find an intern who speaks Polish and can help us get our story out to that part of the population.”

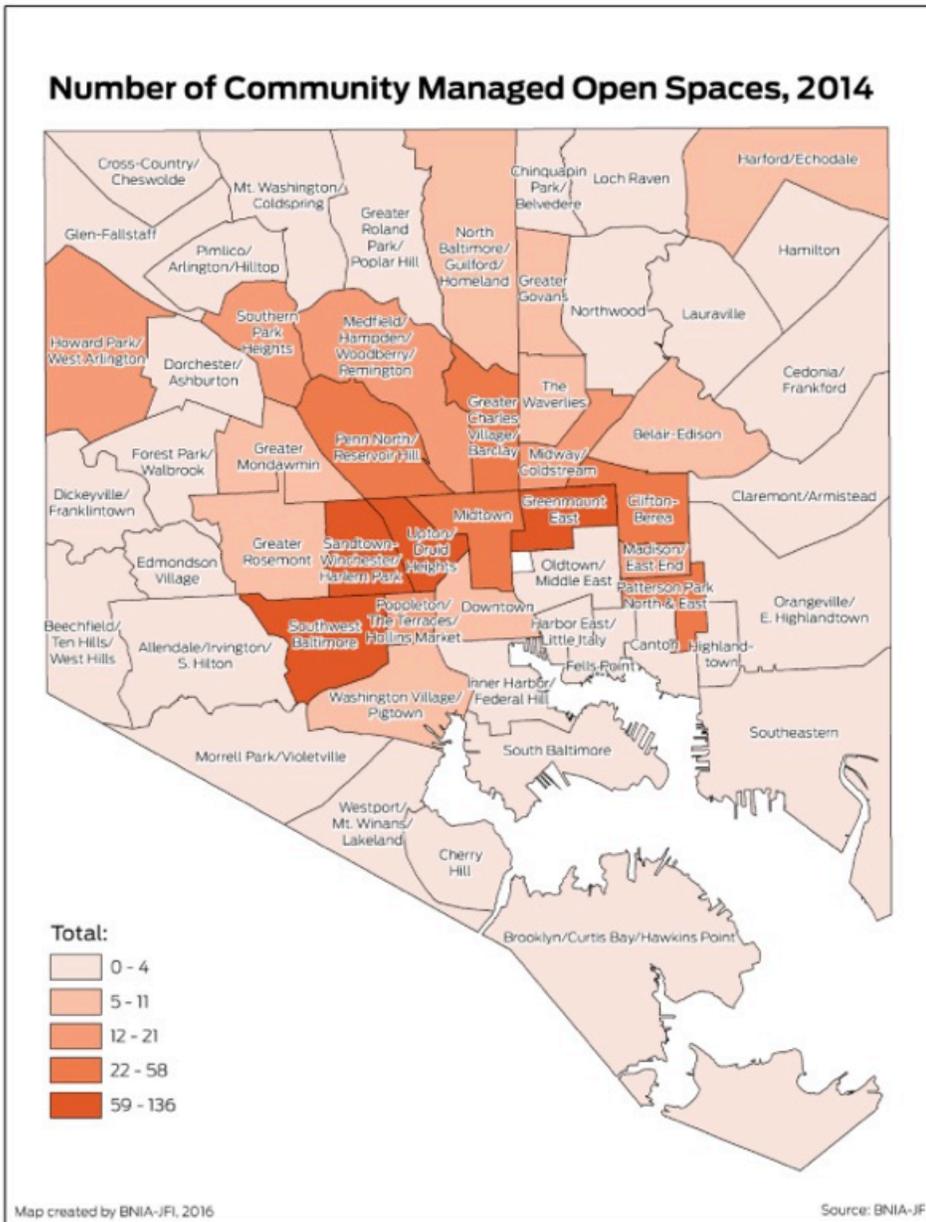
*“We created a tool where we could measure community stewardship groups and show their location and how they change over time. This helps different groups to work together in support of the urban landscape.”*

*- Erika Svendsen, Forest Service research social scientist*



STEW-MAP has helped researchers to map and visually display the information sharing network of Baltimore’s environmental stewardship organizations. (Image: Romolini et al. 2016.)





The Baltimore Neighborhood Indicators Alliance uses STEW-MAP to augment its data on Baltimore neighborhoods. (Image from Baltimore Neighborhood Indicators Alliance–Jacob France Institute, 2016.)

## ANALYSIS AND TURNAROUND IN BALTIMORE

Another group that has used STEW-MAP for several years is the Baltimore Neighborhood Indicators Alliance-Jacob France Institute (known as BNIA-JFI,

or BNIA for short) at the University of Baltimore. BNIA is a nonprofit organization that provides open access to community-level data in Baltimore. According to Seema Iyer, BNIA’s associate director, “We collect administrative data sets of city services — things like the number of permits sold or 311 calls

— and we analyze change over time. Through this we know how people are behaving. STEW-MAP helps us understand why they’re behaving that way.” One of the best examples of Baltimore neighborhood stewardship and turnaround is Patterson Park, Iyer said. Today Patterson Park has a nickname of “the best backyard in Baltimore,” but its public facilities have seen their share of wear and tear. “Patterson Park is the kind of place that you wouldn’t want to go a decade or so ago, but that’s all changed. Groups like the Friends of Patterson Park use our data to note local community needs when they’re looking for grants. Our data helps them to make a solid case for funding and other resources and to advocate for policy or service changes for things like water quality and vacant buildings.” STEW-MAP helps BNIA to identify groups like Friends of Patterson Park, ultimately making those groups more effective.

## CATCHING ON INTERNATIONALLY

Although the initiative began in New York City, Campbell says it has become a collaborative effort between participating groups in many cities, including Los Angeles, Philadelphia, and San Juan, Puerto Rico. International partners include France, Sweden, the Dominican Republic, and Colombia. According to Michelle Johnson, a research ecologist with the Northern Research Station, STEW-MAP is also



part of an ongoing urban forest management plan in Valledupar, Colombia. Johnson explains, “Valledupar is about 100 degrees year-round, and back in the 1970s the mayor wanted it to be a green city. Today, the city has a lot of shade and the people there are very proud of their trees, but those trees are going on 50 years old and a lot of them are dead or dying. Many have to be removed or replaced and they need to know how best to proceed and how to care for the new trees that will need to be planted. The mayor’s office has made it clear that they can’t do all of this themselves.” To help with this process, The Forest Service’s International Programs office is collaborating with the Valledupar mayor’s office. The benefit to Valledupar will be a healthier urban forest, managed with the help of its residents. And the Forest Service benefits as well. As Johnson says, “The Forest Service not only participates in cross-cultural exchange but tests how different research approaches work together. It also allows us to test whether these techniques that have been proven to work in U.S. cities can be replicated in other cultures. We’re finding out what’s universal and what’s unique to a certain place.”

## SYNERGIES WITH OTHER FOREST SERVICE RESOURCES

Forest Service tools that can be used with STEW-MAP include the Urban Tree Canopy Assessment and iTree Tools, a software suite that helps



STEW-MAP is helping Valledupar residents and land managers with long-term tree planning. (Photo by Beatriz Ortiz-Santana)

communities to measure trees and forest resources and the environmental services that trees provide. According to Liza Paqueo, a program specialist for Forest Service International Programs, “When you combine iTree with STEW-MAP, you’ve got a really powerful resource for communities to not only measure their resources but to figure out how to work with stewardship groups to reach community goals.”

## WHAT’S NEXT FOR STEW-MAP?

The next step for STEW-MAP, Campbell says, is to create a new, more standardized portal that can store

*“Sometimes you need to dig in the dirt and sometimes it’s all about organizing coalitions.”*

*- Lindsay Campbell, Forest Service research social scientist*

and convert the data into a usable, visual format. “Right now, cities have to collaborate with geographic information system experts to display the data. Right now it’s all very customized for each city. This is useful in tailoring the data locally but it requires time and resources if you don’t have an online GIS system. In addition to these local maps, our Forest Service map portal will be a standardized format where all



STEW-MAP data can be stored and visualized.”

This added functionality is likely to help even more cities to adopt STEW-MAP. Demand for the data is already high. As Svendsen says, “Modern urban challenges require institutions to work together with communities to collaborate, leverage, and co-create quality-of-life solutions. This is a concept that resonates everywhere, and we’ve found that activities such as tree-planting and gardening can lead to other types of civic engagement.”

In the meantime, STEW-MAP is helping to change perceptions of what community groups can accomplish. By putting groups “on a map,” these groups become more visible and empowered. They can better connect with one another and with city agencies, to share information, make decisions and create change. As Svendsen sees it, “People don’t think of these groups as performing the same kind of function as public land managers, but they actually do. With STEW-MAP, it’s all about planting a seed and enabling political power. People’s actions can make a difference.”

### FOR MORE INFORMATION

Learn more about STEW-MAP by visiting the Webpage: [www.nrs.fs.fed.us/nyc/focus/stewardship\\_mapping](http://www.nrs.fs.fed.us/nyc/focus/stewardship_mapping). The project’s multi-city portal can be found at <https://www.nrs.fs.fed.us/urban/monitoring/stew-map>. This is the eventual planned home of the multi-city ArcGIS online map. Finally, how-to instructions can be found in a report that can be downloaded from [www.nrs.fs.fed.us/pubs/50447](http://www.nrs.fs.fed.us/pubs/50447).

### KEY FINDINGS

- Urban challenges such as budget limitations, aging infrastructure, and natural and man-made disasters have helped spur the creation of community-based environmental stewardship groups across urban areas.
- Many of these groups have emerged in unexpected places to actively care for and cultivate the nature that surrounds them.
- Research has found that environmental stewardship often leads to other forms of civic engagement.
- Despite widespread interest in identifying and quantifying community-based stewardship resources, many cities have no easy way to accomplish this goal.
- Through an information-gathering process called STEW-MAP, the Forest Service has been able to identify and quantify stewardship resources in several cities across the United States and internationally.
- STEW-MAP provides environmental stewardship information such as organizational characteristics, geographic areas of influence, and connections with other civic, private, and governmental organizations.
- STEW-MAP creates publicly available maps and databases to help support community development.



Stewardship groups describe the trees in STEW-MAP site Valledupar, Colombia, as “el pulmón de la ciudad,” or “the lungs of the city.” (Photo by Michelle Johnson, U.S. Forest Service.)

**CROSSING BORDERS WITH THE INTERNATIONAL PROGRAMS OFFICE**

Another Forest Service group that uses STEW-MAP is International Programs. Based in Washington, D.C., International Programs promotes sustainable forest management and biodiversity conservation internationally by collaborating with other U.S. government agencies such as the Department of State, multilateral institutions such as the World Bank, and non-governmental organizations (NGOs) such as The Nature Conservancy. International Programs helps strengthen international ties while addressing issues that cross international boundaries, such as climate change and endangered migratory species.

In recent years, the group's attention has turned to urban forestry, and for good reason: More than half of the world population lives in urban areas. This led to the recent creation of International Programs' Urban Outreach and Partnerships division.

According to Liza Paqueo, program specialist with the division, "International Programs works with more than 90 countries and a wide range of agencies and NGOs on a variety of topics including everything from disaster recovery and mitigation to hydrology, mangrove reforestation and education. By incorporating systems like STEW-MAP in places like Colombia, we're able to share our knowledge about understanding how local stewardship works and also find out what works in other places around the world."

International Programs offers periodic seminars, including an upcoming International Seminar on Urban Forestry in Chicago and New York City in June 2017. This seminar covers topics ranging from city greening and social justice to planning and engagement tools such as STEW-MAP and iTree. More information on International Programs can be found at [www.fs.fed.us/about-agency/international-programs](http://www.fs.fed.us/about-agency/international-programs).



*Clockwise from top left: Community gardeners at a plant giveaway in New York City; Volunteers wheel woodchips during a Chicago Wilderness Corporate Council Day of Service, photo courtesy of Chicago Wilderness; Steward of a 9/11 memorial garden in the streetscape; Front yard gardener in Brooklyn, NY; Volunteers at a MillionTreesNYC planting, photo courtesy of Malcolm Pinckney, NYC Parks; Participants learn about urban bird behavior in a Loyola Marymount University urban ecology professional development workshop in Los Angeles, photo by Michele Romolini. Unless otherwise credited, photos by U.S. Forest Service.*



## MANAGEMENT IMPLICATIONS

- Long-term community-based natural resource stewardship can help support and maintain our investment in green infrastructure and urban restoration projects.
- STEW-MAP can help land managers to maximize community-based stewardship groups in support of sustainability, climate change adaptation and other goals.
- As a census tool and mapping system, STEW-MAP can help land managers identify and evaluate stewardship resources by location and focus, helping to identify gaps and overlaps as well as strengths and weaknesses.
- While STEW-MAP is a natural fit for U.S. urban areas, it has applications in rural areas and has been shown to work internationally, opening up opportunities for strengthening international relations and cross-cultural exchange.
- STEW-MAP has been used by local government and civic organizations to support policymaking and natural resource management activities.

### Purpose of “Current Urban Field Station Topics”:

To provide scientific information to people who make and influence decisions about urban natural resources stewardship. The NRS Current Urban Field Station Topics is published regularly and collaboratively by the Urban Forests, Human Health, and Environmental Quality research work unit and the Communication and Science Delivery staff at the Northern Research Station.

### About Us:

Forest Service Scientists work at the forefront of science to improve the health and use of our nation's natural resources, as well as as well as our nation's forest and grasslands. More information about the Northern Research Station can be found here: <http://nrs.fs.fed.us>

### CONTACT INFO

For more information or to sign up, contact the editor:

**Sarah Hines**  
**Urban Field Station Network**  
**Coordinator**  
**[shines@fs.fed.us](mailto:shines@fs.fed.us)**

## FURTHER READING

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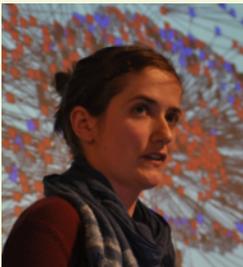
#### WRITER'S PROFILE

*BRIAN COOKE is a science writer currently based out of Fort Collins, Colorado. Brian is a Pennsylvania native with a degree in journalism-science writing from Lehigh University. Brian has also completed writing assignments for the Rocky Mountain Research Station, the National Park Service, and the Bureau of Land Management, among others. Brian's science and environmental writing is frequently colored by his National Park Service interpretive training and experience as a volunteer docent for Alcatraz Island National Historic Landmark and San Francisco Maritime National Historical Park.*

## SCIENTIST PROFILES



ERIKA SVENDSEN is a research social scientist with the Northern Research Station's Urban Forests, Environmental Quality and Human Health research work unit in New York City. She is also a co-director of the New York Urban Field Station, which began as a partnership between the Northern Research Station and the New York City Department of Parks & Recreation. She holds a doctorate in architecture, planning and preservation from Columbia University, a master's of environmental science degree from Yale University and a bachelor's degree from Allegheny College. Erika's research interests involve all aspects of urban environmental stewardship and how stewardship systems shape new forms of governance, collective resilience, sacred space and human well-being. In 2009, Erika received the U.S. Forest Service Chief's Award for Engaging Urban America and Restoring NYC Ecosystems. She received the Northern Research Station Director's Early Career Scientist Award in 2012.



LINDSAY CAMPBELL is a research social scientist with the Northern Research Station's Urban Forests, Environmental Quality and Human Health research work unit in New York City. Lindsay holds a doctorate in geography from Rutgers University, a master's degree in city planning from MIT and a bachelor's degree in public policy from Princeton University. Her research explores the dynamics of urban stewardship, sustainability and environmental policymaking, with an emphasis on social justice issues. Lindsay received the Northern Research Station Director's Early Career Science Award in 2015.

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