

CIVIC STEWARDSHIP OF URBAN ECOSYSTEMS

FORMS OF COMMUNITY ENGAGEMENT WITH LANDSCAPES AND PLACES

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READING OBJECTIVES

- Define civic stewardship in an urban context
- Explain the various “functions” of stewardship
- Cover a series of case studies of stewardship groups in the New York City region
- Outline the connections between government and civic groups
- Make a case for the importance of civic environmental stewardship

Introduction

Worldwide, cities are grappling with aging infrastructure, shifting populations, and a changing climate, necessitating the use and expansion of green space in equitable and creative ways. Many are embracing a transition from the sanitary city (comprised of separate, siloed functions and grey infrastructure) to the sustainable city (comprised of regenerative, multi-functional systems, including green infrastructure) (Grove et al. 2015). While there is no set pathway to a sustainable future, it is clear that major transitions and transformations in built infrastructure, social infrastructure, and systems will be required (see, e.g., Markard et al. 2012; Turnheim et al. 2015). These sustainable systems require ongoing coordination and management. Municipal agencies often do not have the funding or human resources to maintain these systems alone and rely on a growing network of civic organizations and volunteers. The combined stresses of crowding due to global urbanization, budget cuts to public agencies, and environmental impacts are leading to challenges for urban governance. As we seek to steer cities toward sustainability, justice, and resilience—including through expanding and supporting green infrastructure, there is a crucial role for what we call “civic stewards” who engage in multiple functions and ways of caring for urban ecosystems.

Greater attention is needed to the role of civic actors as *stewards* who engage in acts of caretaking and claims-making on the environment (Andersson et al. 2014). Natural resource management often begins with a perspective that focuses on public agencies and private lands. Yet, increasingly, environmental action and governance is recognized to be comprised of collaborative arrangements between government and other actors, as well as networks of actors working across sectors and scales (Sabatier et al. 2005; Koontz & Thomas 2006; Ostrom

2010; Connolly et al. 2013; see also Davies 2011). Many civic groups have missions that span different domains of environmental protection and community development—where stewardship, or civic ecology, is used as a means to advance local quality of life (Connolly et al. 2014; Krasny and Tidball 2015). As such, stewardship practices can be undertaken by diverse groups—and individuals—with different foci on youth, seniors, social services, housing, arts, and immigration, and across multiple urban ecological site types, such as parks, community gardens, waterfronts, and brownfields (Svendsen & Campbell 2008). These stewards can work independent of government; in collaborative arrangements; and/or through contestation, activism, and advocacy.

Urban environmental stewardship is comprised of a range of diverse practices, beliefs, and approaches, including hands-on work, an ethic or ethos, and the knowledge and skills required to take action. One recent schema theorizes stewardship through the domains of knowledge, care, and agency (Andersson et al. 2017). Others have proposed social-ecological stewardship frameworks drawing on multiple scales and methodological approaches (Romolini et al. 2016; Muñoz-Erickson et al. 2016). Previously, we defined urban environmental stewardship by the functions that these groups take on in caring for the local environment: conservation, management, monitoring, advocacy, and/or education (Fisher et al. 2012; Connolly et al. 2013; Svendsen et al. 2016). Here, we also add transformation, in recognition of the way in which stewardship groups aim to transform systems such as energy, water, waste, and communications networks toward more sustainable, resilient arrangements (Olsson et al. 2014).

Our six functions of stewardship connect to existing literatures and frameworks that describe the role of communities, civic organizations, and individual citizens in natural resource management, environmental governance, and knowledge production. While these literatures sometimes overlap and extend beyond the functional categories, they also provide insights into the ways in which communities care for local environments in a range of ways.

TABLE 14.1 Examples of Stewardship Functions

Function	Examples	Theory	Citations and Further Reading
Conserve	• Historic preservation • Defending open space from development • Protecting community gardens	Conservation practitioners and scholars have highlighted the capacities of communities to engage in collaborative conservation efforts, including through the creation of land trusts and community land trusts (CLTs) that purchase and set aside land for preservation. These land trusts are located in both rural and urban areas, and some forms of CLTs conserve not only open space, but also affordable housing. Biocultural conservation offers an alternative framework for thinking about the relationships between humans and their environments that acknowledges nature and culture are fundamentally entwined, integrated, and reciprocal; thus, conservation planning and efforts must include socio-cultural dimensions and understanding of the people connected to the places to be conserved.	• Soifer, 1990 • Campbell & Salus 2003 • Merenlender et al. 2004 • Avins 2015 • Turner et al. 2000 • Berkes 2012 • Gavin et al. 2015 • Sterling et al. 2017

Function	Examples	Theory	Citations and Further Reading
Manage	• Park administration • Land maintenance • Site-based programming	The natural resource management literature has variously described communities' roles through the lenses of community-based natural resource management, co-management, adaptive co-management, and civic ecology. These literatures describe the governance arrangements and practices through which communities work in managing green and blue places, including how they operate both independent of or in collaboration with public agencies and the private sector.	• Weber 2000 • Wondolleck and Yaffee 2000 • Koontz et al. 2004 • Olsson et al. 2004 • Tidball & Krasny 2015
Monitor	• Measuring water quality • Tracking tree health • Determining social impact	Communities are involved in diverse forms of knowledge production, with monitoring and sensing of the local environment being important components of those processes. Stewardship is connected to traditions of public participation in scientific research, citizen science or civic science, and environmental "bucket brigades."	• Silva and Krasny 2014 • Bonney et al. 2009; Sorensen et al. 2018 • O'Rourke and Gregg, 2003
Educate	• Youth engagement • Public education events • Job training	Environmental education seeks to enhance the ecological literacy of the public and/or particular communities—such as urban youth, through in-class curriculum and STEAM-based education, as well as through field-based and informal education approaches.	• Schusler et al. 2009 • Schusler and Krasny 2010
Advocate	• Lobbying • Environmental justice activism • Promoting sustainable policies	Civic stewards seek not only to understand and manage their local environments, but also to advocate for and envision new forms of environmental equity, justice, and sustainability. There is a long tradition of civic engagement, activism, and local social movements related to the quality of the environment and community well-being.	• Carmin and Balser 2002 • Andrews and Edwards 2005 • Fisher et al. 2015
Transform	• Composting food waste • Alternate energy uses • Recycling	Community-organized initiatives can be a source of transformations in environmental systems (e.g. waste systems, energy systems, food systems) and ecosystem service provision, and in environmental governance, by introducing innovations that may lead to reconfigured feedbacks that govern the state of the system.	• Colding et al. 2006 • Andersson et al. 2007 • Westley et al. 2013 • Chapin et al. 2009, 2010

Approach and Methods

The Stewardship Mapping and Assessment Project (STEW-MAP) is a US Forest Service national research project designed to answer the questions: *Who are the active environmental stewardship groups in my area? Where, why, and how are they caring for the local environment, including land, air, water, waste and toxics?*

STEW-MAP is a data-driven tool designed to demonstrate that people can be positive agents of change in their communities. Our intent is to visualize the often "unseen network" of stewardship actions throughout any given neighborhood, city, region or beyond. STEW-MAP surveys the many groups that take part in environmental stewardship to capture and present data on their organizational characteristics, such as year founded and staff size; their "turf," or geographic area where they work; and their social networks, including civic, private, and governmental organizations (Svendsen et al. 2016). STEW-MAP began in New York City and has since grown into a multi-city research endeavor. To date, the project has been replicated by US Forest Service researchers and university cooperators in Chicago, Baltimore; Seattle; Philadelphia; San Juan, Puerto Rico; and Valledupar,

Colombia. STEW-MAP is now being implemented in Los Angeles; Paris, France; Santo Domingo, Dominican Republic; North Kona and South Kohala, Hawai'i; Oahu, Portland, Maine; Puerto Princesa, Philippines; and Denver. To learn more about the growing multi-city network, visit: www.nrs.fs.fed.us/urban/monitoring/stew-map/.

The original New York City STEW-MAP was developed in 2007 as a collaboration between a team of Forest Service and university researchers and dozens of partner organizations, both municipal and nonprofit, who shared the goal of better understanding and tracking civic stewardship. Past studies show that existing national directories of non-profit groups overlook many local groups (Andrews & Edwards 2005; Kempton et al. 2001; see also Brulle et al. 2007), so we aimed to create a sampling frame of groups that better represents local stewardship. To compile this sampling frame, major public agencies and non-profits operating at the citywide or borough-wide scale on issues related to the environment and natural resource management were approached with a request to serve as data providers by sharing their lists of organizational partners (for more details on survey methodology see Figure 14.1; Fisher et al. 2012).

STEW-MAP implementation steps

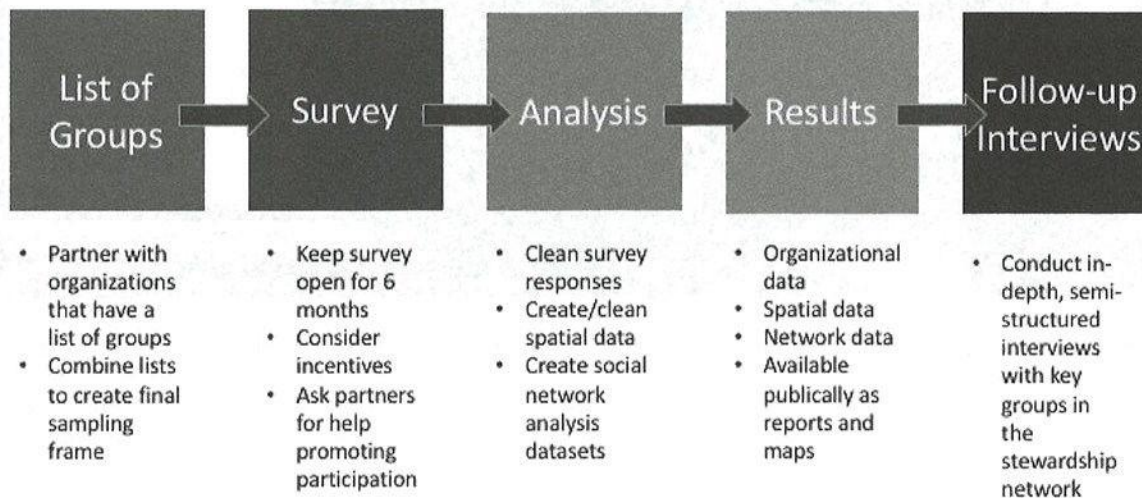


FIGURE 14.1 Methodology

In 2017 in New York City, we repeated the survey and expanded our approach. First, the process of convening citywide and borough-wide stakeholders led to a larger set of data providers (fifty-five data providers in 2017, as compared to twenty-eight in 2007), as the concepts and practices of stewardship resonates with a wider arena of practitioners across diverse fields, including not only the environmental sector, but also resiliency planning, arts and placemaking, and community development. Second, we expanded the geographic scope to include the greater metropolitan region (defined as the New York-Newark NY-NJ-CT-PA Combined Statistical Area, See Figure 14.2). For this chapter, we separated the groups in the survey by their primary stewardship function (see survey protocol at www.nrs.fs.fed.us/STEWMAP/2017NYCSurvey.pdf). We then selected a purposive sample of groups to serve as case studies for each of the six stewardship functions, taking into account completeness of responses as well as availability of other data with which to triangulate, including 2007 STEW-MAP responses and/or publicly available websites. The groups highlighted in this chapter aim to demonstrate the unique and often innovative ways that people care for the urban environment. These cases are not meant to be representative of the entire stewardship population in New York City, but rather are meant to illustrate the breadth of functions that these civic stewards take on through their engagement with urban landscapes and communities.

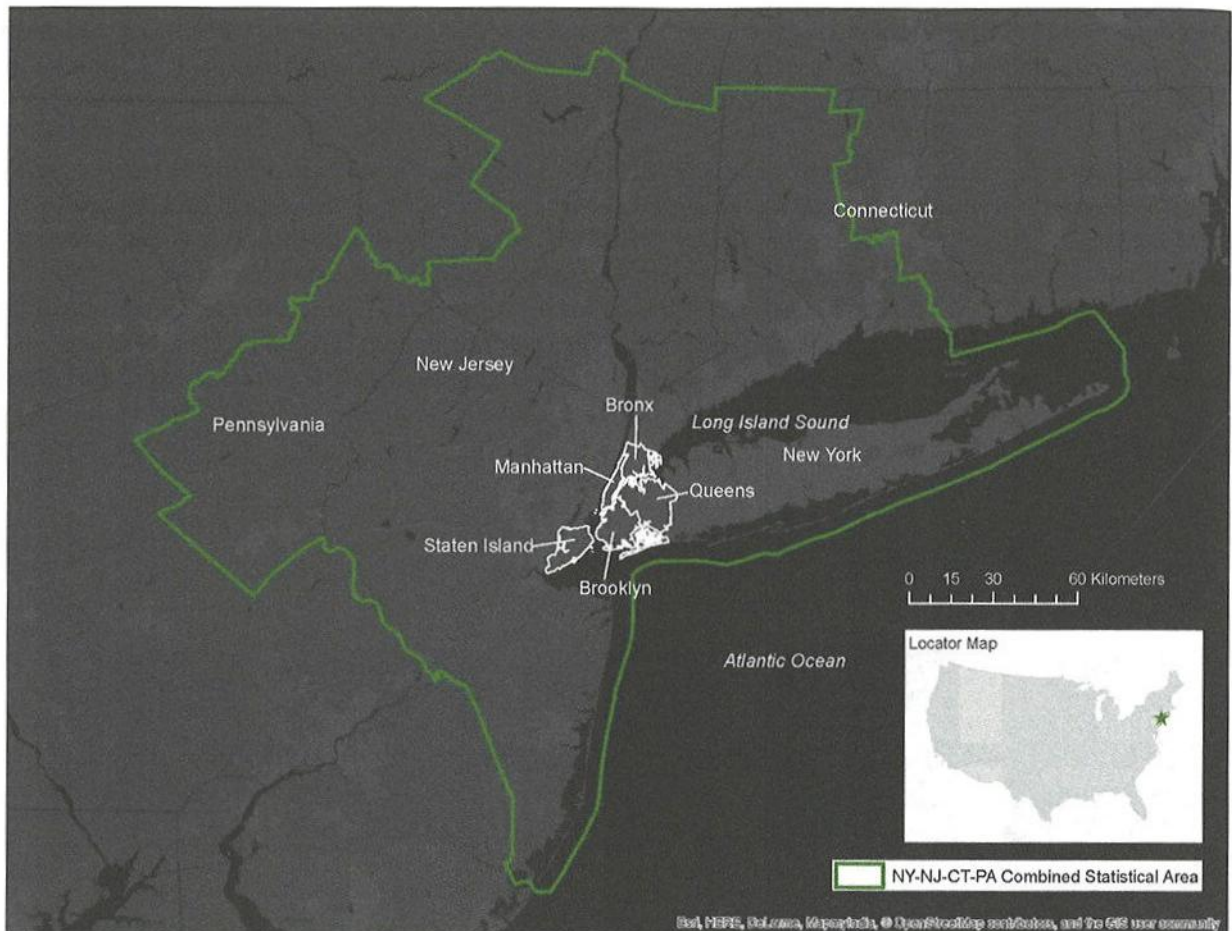


FIGURE 14.2 NYC Borough and Region Map STEW-MAP 2017 defined the region as the New York—Newark NY-NJ-CT-PA Combined Statistical Area

Results

Here we present a synthesis of selected cases of civic stewardship groups active in 2017 in New York City, organized by their primary stewardship function: conservation, management, monitoring, education, advocacy, and transformation (see Figure 14.3). It is important to note that many stewardship groups pursue multiple functions (e.g., education and management) simultaneously in pursuit of their mission, which is reflected in one question of the survey. A follow-up question asks respondents to select their primary function, which is the data used in categorizing groups here. Even within a single functional category, we find multiple ways in which groups define and actualize their work in urban systems; groups work across a range of scales, with diverse networked partners, and offer varied services as they steward the city.



FIGURE 14.3 Photo Collage of 6 Images, One Per Function Top row, from left to right: Conserve: community garden preservation sign. Manage: volunteers at a MillionTreesNYC tree planting. Monitor: volunteers monitoring an oyster research station. Bottom row, from left to right: Educate: GrowNYC youth urban forestry education program. Advocate: community gardeners protesting on the steps of City Hall. Transform: volunteers with the Lower East Side Ecology Center bagging compost for delivery to NYC residents.

Conservation

Given that environmental stewardship in New York City occurs in the context of a heavily built, human-dominated social-ecological system, we find that conservation practices range from conservation of ecological or landscape features, to historic preservation of the built environment, to preservation of open space in the face of development pressures and threats. For example, the Roosevelt Island Historical Society (RIHS), founded in 1976, works primarily through archiving materials (artifacts, documents, publications, photographs, prints, and other media) and educating the public in order to share the story of Roosevelt Island and inform visitors of its significance in New York City's history and development. In addition to the landmarks and buildings they manage, such as the former Riverside Hospital and Nursing School, RIHS works to maintain the public grounds of the Island, including a community garden through a partnership with the Roosevelt Island Garden Club. They have a large membership base, which comprises roughly twenty percent of their annual budget. RIHS also runs a monthly lecture series in collaboration with the New York Public Library, covering a range of New York City historical topics and events (Roosevelt Island Historical Society 2017).

Conservation can also be a political act. In the 1990s, when community gardens were under threat of development by the city, many banded together to create coalitions in order to protest, protect, and preserve their green spaces (for a detailed history of the community garden struggle, see Von Hassel 2002; Lawson 2005; Campbell 2017). Brooklyn Alliance of Neighborhood Gardens (BANG) is a community-based coalition of gardens based in Brooklyn that drew attention to the need to preserve these vital neighborhood open spaces. For example, they attended protests at City Hall and created fliers and posters comparing thousands of vacant lots citywide to the several hundred community gardens. This comparison countered the narrative that affordable housing and gardens were competing for developable space. In addition to advocacy and protest, land trusts were used to secure land for public use in the face of this development threat. Trust for Public Land and New York Restoration Project purchased several dozen threatened sites and placed them in land trusts for use as community gardens. Trust for Public Land then worked to incubate borough-based land trusts to build local leadership and devolve

the governance of these sites—including the Manhattan Land Trust. Today, Manhattan Land Trust's core work is to protect their gardens, but they also work to enhance existing gardens through education, communication, and leadership skill-building (Manhattan Land Trust 2015).

Management

Land management can vary greatly in scale, from a specific park or clearly delineated green space, to an entire neighborhood with a network of spaces to maintain. Hands-on, site-based management is the primary function for groups like Riverside Park Conservancy (RPC) and Snug Harbor Cultural Center and Botanical Garden (Snug Harbor). Riverside Park evolved into what it is today over the course of a century. In the 1870s, Frederick Law Olmsted was commissioned to design a park along the west side of Manhattan that would connect 72nd St. to 125th St. and green the area by the Hudson River Railroad. The park continued to evolve under Parks Commissioner Robert Moses in the 1930s and 40s, when it was widened westward, covering the railroad tracks and allowing users to access the waterfront. In 1980 the park was designated a scenic landmark, but at the same time, park users were noticing deteriorating conditions and an increase in crime. Neighbors of the park came together to address these issues by raising money to improve the park infrastructure under the moniker Riverside Park Fund, which eventually evolved into the RPC. Now, they work collaboratively with the NYC Department of Parks and Recreation (NYC Parks) to manage the more than 330 acres of parkland stretching six miles from 59th St. to 155th St. in Manhattan. The Conservancy provides around one million dollars a year to NYC Parks to support specific projects, as well as salaries of park workers. In addition to managing the physical space, the conservancy manages public programs and stewardship opportunities across the park for groups and individuals of all ages, including a teen corps program focusing on stewardship and horticultural education (Riverside Park Conservancy 2017; NYC Parks 2017).

Snug Harbor similarly manages a plot of land, which includes gardens, an urban farm, wetlands, a park, and twenty-eight buildings. Originally the estate of Robert Richard Randall, Snug Harbor was founded upon his death in 1801 as a haven for "aged, decrepit, and worn-out sailors" on Staten Island (Snug Harbor 2017). Since then they have expanded to deliver programming in arts, education, horticulture, agriculture, and recreation. Snug Harbor is part of a network of botanical gardens across New York City, including New York Botanical Garden (located in the Bronx), Brooklyn Botanic Garden, and Queens Botanical Garden, with all serving as the manager of their grounds that function not only as a "museum for plants" but also as an ecological and cultural hub for local communities.

Working in a very different landscape, setting, and scale, the Jackson Heights Beautification group serves as land managers throughout the neighborhood of Jackson Heights, Queens. Not unlike RPC, the Jackson Heights Beautification Group (JHBG) emerged out of an effort to restore and beautify the community during a time of financial instability. Founded in 1988, one of their first major accomplishments was receiving the designation of historic district. JHBG is a membership-based nonprofit that is comprised entirely of volunteers who live in the neighborhood. They run a community garden, a dog run, a compost drop-off program, and they organize programs and social gatherings to enhance the neighborhood. To further their goals, they partnered with ioby ("in our backyard"), a non-profit that uses a combination of crowdsourcing and resource organizing (nicknamed "crowd-resourcing") to support community driven projects. JHBG's 2011 ioby campaign raised \$3,402 to create a "playstreet" closed to traffic and open to children and adults for recreation, events, and socializing all summer long. The playstreet adds open space to a neighborhood lacking in parks and provides a natural site for summer concerts and other events that bring the community together (Jackson Heights Beautification Group 2010; ioby 2012).

Monitoring

Stewardship groups have a long tradition of engaging in environmental monitoring, drawing upon practices and traditions such as citizen science, bucket brigades, participatory action research, and open data approaches. In

many cases, this takes the form of monitoring water quality to ensure that it complies with regulatory standards set by the Clean Water Act. Ocean Port Water Watch and Harbor Watch are two such groups that consistently monitor water quality and share the results with the public. Since 1986, Harbor Watch displays the data from their research on a public map of all their water-quality test sites, keeping residents informed about their waterways. The Newtown Creek Alliance (NCA) also has the primary function of monitoring, but it focuses more broadly on community well-being. NCA strives to protect the environmental, recreational, and commercial health of Newtown Creek—the heavily industrialized and contaminated body of water that separates Brooklyn and Queens—by restoring, revealing and revitalizing Newtown Creek. Its multi-pronged approach began out of a response to the Greenpoint oil spill, a 17–30-million-gallon underground oil spill resulting from decades of industrial pollution in the Greenpoint neighborhood of Brooklyn in the twentieth century. NCA, alongside Hudson Riverkeeper and City Council member David Yassky, sued Exxon Mobil and settled for \$19.5 million for environmental projects and green infrastructure in Greenpoint. In 2010, the Newtown Creek was declared a Superfund site by the Environmental Protection Agency. Subsequently, the Newtown Creek Community Advisory Group was formed, relying on NCA to play a crucial role in ensuring that federal resources are put to the best use. In addition to improving the water quality and habitat of the creek, NCA aims to increase access and use of the waterfront through public tours and education about the creek and its history. They also engage community members in hands-on stewardship projects. Finally, the NCA serves as a voice for their neighborhood by playing a role in brownfield redevelopment and weighing in on important community decisions around green jobs and business through partnerships with community groups, watershed coalitions, and government. In order to quantify their impact, NCA tracks the number of events held, number of participants at each, the amount of trash removed, and the number of environmental violations investigated and reported. They make sure to measure the impact they've had in each area of their work: restoring, revealing, and revitalizing. Since their official founding in 1997, they have worked to add access points to the creek, create new green infrastructure sites, re-introduce salt marsh grasses to the creek, and track and publicize water quality (Newtown Creek Alliance 2016).

Stewardship groups can also monitor actions and outcomes. Co-created with the Design Trust for Public Space, Farming Concrete is an open-source toolkit for urban agricultural data that was developed locally in New York City but meant to be used by gardeners anywhere via online tools. The project emerged out of a winning proposal by a non-profit called Added Value, which worked with the Design Trust to develop Five Borough Farm, a set of policy recommendations for New York City to help recognize the broad range of urban agricultural work happening in NYC. In 2012, the Design Trust collaborated with Five Borough Farm and Farming Concrete to create a publicly downloadable set of guidelines and instructions on how to measure and track food production, environmental data, social data, health data, and economic data. It allows community gardeners and urban farmers to better understand and document the many varied impacts of their work. The Farming Concrete website invites users to input data, as well as download data that others have shared. To date, 371 gardens in seventy-one cities have shared data through the site (Farming Concrete 2017).

Education

Environmental education has been an abiding approach of local stewardship organizations, although the forms and spaces in which curricula and programs are delivered are as varied as the groups themselves. Stewardship group focus on both youth and adults, and target both specific groups of students and the general public, they offer in-class curricula, field-based or informal learning, and professional development and training. Some groups, like City Parks Foundation's Green Girls (founded 2001)—an after school and summer program for early adolescent girls to encourage the pursuit of environmental science and stewardship—have an explicitly environmental focus. Others focus on youth more broadly, like the Brotherhood/Sister-Sol located in Harlem. Bro/Sis provides support to Black and Latino youth in underserved communities. Founded in 1995, they offer a range of programming on issues from educational achievement to sexual responsibility. Although the environment isn't central to their mission, they understand the intersection of environmental and social justice, and aim to address youth services in a holistic way. Bro/Sis manages the Frank White Memorial Community Garden and an environmental education

center, which was developed on a seven thousand square foot vacant lot. The education center includes an indoor urban farm and greenhouse, as well as spaces for recreation, performance, and team-building activities. The youth in Bro/Sis play a crucial role in the design of the spaces, and benefit from the multi-pronged educational approach. Participants engage in exciting hands-on learning in the center and are given opportunities to help shape programming for their peers. For instance, the youth were integral in the creation and shaping of the program and chose to name the umbrella of environmental efforts the “Gaia Renaissance,” a tribute to the goddess of the earth. The Gaia summer internship leads to year-round participation in the Renaissance Collective, where students continue to learn about food empowerment; leadership development; waste management; sustainable design; community organizing and horticulture science (Brotherhood/Sister Sol 2017).

Education also spans physical site types. Many efforts are field-based, where learning is enhanced by being in specific settings—whether through field trips or permanent locations—but these sites don’t have to be natural areas (like forests or wetlands). Concrete Safaris (founded in 2008) is a youth education program aiming to provide students with the tools they need to become advocates for public health, focusing on the urban environment and infrastructure and advocating for improvements like an increase in bike lanes and community gardens. They track the number of schools they visit in order to measure the impact they have in New York City and hope to reach three thousand children in upper Manhattan by 2024 (Concrete Safaris 2017).

While many education groups focus on educating youth to become future leaders, some have an older cohort. Farm School NYC provides training to New York City urban farmers and gardeners interested in furthering their impact on their neighborhoods. Classes cover topics such as botany and irrigation, but also focus on food justice and community organizing, supporting empowered leaders who are well-versed in issues of food access and social, racial, and economic justice. Farm School is committed to making their programs accessible and representative of NYC’s diverse population. Students can enroll in individual courses or in one of two certificate programs—a two-year urban agriculture program or a one year intensive focused on hands-on farming—and tuition is offered on a sliding scale based on household size and income in order to minimize the barriers that are often associated with adult education. The idea for Farm School was conceived in 2007 by a group of like-minded farmers and activists, including leaders from the organization Just Food. In 2011, with the support of Just Food and over fifteen other groups, Farm School officially opened. They track their progress by the number of graduates of the program, and trust that their alumni will help inspire local action in their communities (Farm School NYC 2017).

In addition to student-focused education, stewardship groups also work to educate the public more broadly. The Billion Oyster Project, an initiative of the New York Harbor School, is working to restore New York’s oyster population with one billion oysters in order to achieve the larger goals of fostering awareness and understanding of the New York Harbor. In 1609, there were 22,000 acres of oyster reef in the New York Harbor—a population that was decimated by 1906 due to harvesting and poor water quality. They have a four-fold approach: classroom teacher trainings and curricula for STEM education; tools for community organizations or individuals to create and monitor their own oyster research station; restaurant oyster shell collection to restore oyster reefs; and regular volunteer projects open to the public. They track the number of restored oysters and are on track to hit one billion by the year 2035 (Billion Oyster Project 2013).

Another example of a public engagement and education project is Swale, NYC’s public floating food forest. Developed by artist Mary Mattingly and her collaborators, the piece addresses issues of food access and waterway stewardship. Swale is an edible forest atop a rented barge that docks at various NYC piers from summer to fall, allows the public to pick produce for free, and encourages visitors to contemplate the city’s policy of not allowing the public to harvest fruit, vegetables, and herbs in public parks. Swale works with many partners both on and off the barge. On site, they host school groups and events to teach about foraging, plants, and food systems. In addition, Swale works to advocate for a public foodway at Concrete Plant Park in the South Bronx. In working toward this goal, Swale partners with many other groups and organizations, from grassroots community groups to city agencies, such as NYC Parks (Swale 2017).

Advocacy

Advocacy is not only the domain of national, professionalized organizations or lobbyists; we find diverse examples of stewardship groups engaged in policy work, activism, and organizing at the state, city, and neighborhood levels. Some advocacy-focused stewardship groups work specifically on land and environmental issues, while others tackle planning, economy, health, and arts. As a whole, these groups advocate for improved quality of life across sectors, with the environment as a theme that threads through their work. A more traditional example of an environmental advocacy group is The New York League of Conservation Voters, which since 1989 has worked across the entire state on political advocacy with the goal of fighting climate change, conserving land and water, and protecting public health. Their non-partisan model evaluates, endorses, and aims to elect officials who are equipped to be environmental leaders into every level of government. They also identify issues of importance in every region, helping to inform residents about pressing environmental policy and news. Half of their funding comes from foundation giving, but they also hold events to raise money and spread awareness (New York League of Conservation Voters 2017).

Several organizations illustrate advocacy at citywide scales. The group 596 Acres was founded in 2011 as a response to learning about the amount of vacant acreage in New York City that they desired to put into productive community use. The organization advocates for more just and equitable cities by encouraging and assisting NYC residents to take ownership of vacant lots and turn them into vital green neighborhood spaces. They blend a mix of online, data-driven maps and offline, physical community organizing to advance their goals. The aim of 596 Acres is not only to support New Yorkers in shaping their own neighborhoods, but to shift the governance structure in the process and advocate for residents to play a larger role in decision-making. Because the online platform is open source, 596 Acres' approach has been shared and adapted through activist networks for use in other contexts, such as New Orleans. In 2013, 596 Acres partnered with New Orleans Food and Farm Network to create Living Lots NOLA, with the goal of connecting community members to vacant lands (596 Acres 2016). Naturally Occurring Cultural Districts of New York (NOCD-NY) also works citywide to advocate for policies and practices that support cultural work. They are a coalition of artists, activists, leaders, and cultural organizations who come together to collaborate on improving NYC neighborhoods through arts and culture from the ground up. The group emerged from a series of roundtable conversations beginning in 2010 and has since expanded to over twenty groups, individuals, and affiliates who meet monthly to work on campaigns and programs that promote diverse and relevant community-based art and culture. Past projects include cultural community organizing trainings and policy briefings for city council advocating for stronger support and integration of the arts. These briefings contain examples of groups using art to address everything from disaster recovery to gun violence to environmental justice (Arts and Culture for a Just and Equitable City 2014). Many of the member organizations of NOCD-NY, like El Puente in Williamsburg, participate in environmental stewardship work on their own as well. Coalitions like NOCD-NY allow these neighborhood groups to share ideas and best practices and to grow their impact to the city scale.

The South Bronx Overall Economic Development Corporation (SoBro) works at the neighborhood scale and was founded in 1972 with the mission of reversing the flight of businesses from the South Bronx. They quickly grew to adopt a holistic approach to community development. SoBro runs programs focused on education, job training, housing, and community revitalization. In all of these efforts, they prioritize projects that address sustainability and health concerns. Through green infrastructure, they are working to reverse the negative health impacts resulting from the inequitable pollution in the South Bronx, and they are working with partners to improve waterfront access, increase public space, and remediate brownfields (South Bronx Overall Economic Development Corporation 2014).

Transformation

Transformation is a new function added to STEW-MAP in 2017 that captures groups working in systemic ways on transforming systems of food, waste, and energy toward more sustainable trajectories. Many of the groups that identify transform as their primary function work on solutions to food waste; compost is a common focus.

The Lower East Side Ecology Center (LESEC) was founded as Outstanding Renewal Enterprises, Inc., in 1987. They were one of the first NYC groups to offer recycling drop off services, today they also collect compost, and are now the largest non-municipal provider of e-waste services in NYC. In addition to their collection services, LESEC provides a variety of environmental education programs and runs a community garden. They work with the New York City Department of Sanitation through the NYC Compost Project, a compost education initiative which is hosted at seven locations across the city (Lower East Side Ecology Center 2017). Earth Matter is another Compost Project site. A non-profit founded in 2009, Earth Matter strives to reduce the amount of food waste misdirected into the waste stream by focusing on compost education across the city. They run a compost learning center on Governor's Island in the middle of the New York Harbor where they process food-waste on-site and run a youth internship and an adult apprenticeship. In addition, they run a community garden, greenhouse, and urban beekeeping center (Earth Matter 2017).

In addition to practicing and promoting composting, groups like AmpleHarvest.org seek to limit food waste by equitable distribution of excess produce to soup kitchens and food pantries. While they are headquartered in New Jersey, their scope is national. Their online nationwide registry allows pantries to make themselves known to gardens and farms looking to make donations. A google point map of the US shows all 8,122 registered pantries, and their web portal allows users to search by ZIP code or geography to find the contact information for the right donation site. AmpleHarvest.org was founded in May 2009 and supported in part by advertising funding through Google. By October of that same year, 1,000 pantries had already registered online. AmpleHarvest.org then began a partnership with United Way to connect needy individuals to the same list of food pantries. Their partnerships have continued to grow since, connecting with universities, federal agencies, and over twenty-five private and not-for-profit collaborators (AmpleHarvest.org 2016).

The transform function also includes enhancing energy efficiency and shifting energy systems toward more sustainable sources. Empire Clean Cities is the New York chapter of Clean Cities, a national network of local coalitions aiming to reduce vehicular petroleum use to improve the nation's economic, environmental, and energy security. Clean Cities is a program of the US Department of Energy that works on multiple scales; sharing information and resources about alternative energy nationally and developing partnerships locally to promote those alternative and replace existing vehicles with low- to zero- emission vehicles. The long-term goal of both the coalition and the nonprofit is to ensure clean air for future generations. Their "RISE" method Recommends resources for alternative fuels, Informs citizens about the importance of clean energy, Supports GHG emission reduction, and Encourages conversations about this effort (Empire Clean Cities 2017).

DISCUSSION

People engage in urban environmental stewardship for many different reasons that are represented across many functions, site-types, and foci. From our cases, we see that stewardship is not one thing; instead, it is wildly heterogeneous. Categorizing stewardship by function allows us to parse what groups do and relate those actions to other group characteristics, such as core mission, area of interest, staff size, budget, and outcomes. Essentially, our six functions serve as a typology of stewardship. Examining stewardship through the lens of these functions provides us with a way to find commonalities and distinctions across groups.

Overall, our six functions capture the major "buckets" of stewardship actions and practices. Here, we have described stewardship groups within the context of six primary functions. In the STEW-MAP survey, groups were also given the option to select "Other" (Participate in, partner with groups, or support other environmental work) as a primary function. Looking across all survey responses, rather than our focused cases, a few other possible functions emerge: creating knowledge or conducting research, training environmental leaders, and connecting people. Creating knowledge closely aligns with the monitoring function, but it may better describe groups engaged in primary research. Training environmental leaders and connecting people are actions focused on the critical social dimensions of environmental stewardship, but they may less directly impact a particular place. Because groups are asked to self-identify their primary stewardship function, we see some variation among seemingly similar groups with differing priorities on their own definition. For example, some community gardens identified their primary function as manage, because they take care of the caretakers of a specific

city lot. Other community gardens see their primary function as educating their neighbors. In order to gain a more detailed view of the differences between these gardens, we could also look at their self-identified primary focus. Overwhelmingly, many gardens identify their focus as food or environment, but have different approaches to the same goal, which makes sense, given that community gardens are quintessential examples of grassroots governance at work.

Across all stewardship functions, we see groups are working towards similar goals of improving local quality of life. As clarified in the case studies above, many groups work toward the same overall goals through different primary functions. Whether through education or transformation, whether in gardens or classrooms, stewardship groups aim to care for the local environment while improving conditions for those who live in it. Groups that work to conserve can focus on history, like Roosevelt Island Historical Society, but may also aim to conserve land or culture; all value the preservation of the legacy that defines our city. Land management varies in scale and includes some of the most traditional, hands-on forms of stewardship, but it also captures multi-functional groups that run many programs out of one site, such as Snug Harbor. Groups focused on monitoring aim to gather and track data in order to support longer-term goals. In the case of the Newtown Creek Alliance, their water monitoring provides both the information and the approach needed for increased community engagement. Education and advocacy are equally as important as the place-based functions and are ways of engaging stewards beyond the scope of a specific piece of land, perhaps even at a regional scale as with the New York League of Conservation Voters. Finally, transformation, the newest function collected in STEW-MAP data, accounts for the increased focus on waste, food, and energy systems that span geographies, and acknowledges that we are connected beyond geographic boundaries through the air we breathe and the water we drink.

Using a typology of stewardship functions can help us understand a group's role in the larger network of organizations engaged in environmental governance. Functions help describe how stewards contribute to environmental governance by describing how groups make change. Civic stewardship groups exist at many levels of professionalization and work both in collaboration with and independently from public agencies. In many cases, the groups that work with city government are the same groups that hold government accountable, advocating for environmentally just and inclusive policy. Groups that work independently from government may be formal or informal and have the ability to work outside the bounds of political hierarchy. Some groups, such as the Jackson Heights Beautification Group, started out as an informal group of friends and later obtained non-profit, 501(c)(3) status. Although not highlighted in our case studies here, many STEW-MAP respondents, such as small block associations, friends of groups, and community gardens, remain informal (Fisher et al. 2012). While the focus of this research is on civic groups, the role of government is relevant as well. Because much of stewardship activities occur on public lands, groups focused on the management, monitoring, and conserving functions often directly collaborate with government on land-use decisions and information sharing. Similarly, city agencies like the Department of Sanitation (DSNY) play a large role in the transformation function, through the DSNY Compost Project, which is co-located with many civic stewardship groups. Environmental education occurs both in collaboration with city government through the Department of Education (school gardens, greening clubs, etc.), as well as independently, through the many extra-curricular programs such as Concrete Safaris and Brotherhood/Sister Sol, discussed above. By nature, advocacy work must occur outside of government, but groups like 596 Acres and NYLCV work in close communication with city agencies to achieve their goals.

Placing stewardship function alongside other organizational characteristics can help us understand drivers and outcomes of stewardship. STEW-MAP is interested not only in explicitly environmental groups, but also in the groups and organizations that support stewardship work alongside their core mission. Past STEW-MAP findings show that there is often overlap between environmental stewardship and social services, and that environmental efforts can support larger organizational goals of community cohesion, education, and rehabilitation. Thus, the drivers behind environmental stewardship vary widely from group to group, as do the desired outcomes. These outcomes can be both social and environmental in nature. Groups focused on conservation and management may identify more with biophysical outcomes, such as land protection or plants and habitat quality, while groups focused on advocacy or education may emphasize outcomes around community participation, trust between neighbors, and influence on policy and programs.

Conclusion

As we increasingly look toward cities to serve as models of sustainability, we must also recognize the many efforts of the civic realm in working toward this goal. STEW-MAP is a project that amplifies the work of civic environmental stewardship through public data and maps of stewardship groups across a specific geography. STEW-MAP databases and interactive maps allow land managers, community organizations, NGOs, and the public to see where hundreds of environmental stewardship groups are working in a particular landscape of interest. This community organizing tool can be applied to strengthen capacity, promote engagement with on-the-ground projects, and build more effective partnerships among stakeholders involved in caring for the land.

The data collected through STEW-MAP show that the work of these environmental stewardship groups varies greatly. Our six functions—conservation, management, monitoring, education, advocacy, and transformation—help us to better understand the goals and outcomes of different forms of stewardship work. The case studies above provide further context and detail, showing their unique histories and characteristics, as well as their shared objectives.

Stewardship functions help us wade through the vast landscape of civic environmental stewardship. It is through the categorizing and subsequent examination of group characteristics, governance role, and impacts that we can identify how civic groups are contributing to the sustainability of our cities and towns. By broadening our understanding of who takes care of the city and deepening our knowledge of what it means to take care of our local environment and our communities, we can better recognize and lift up the work of civic stewardship across the region.

EXERCISES AND DISCUSSION QUESTIONS

- Prior to reading this chapter, how did you think about environmental stewardship? How would you define stewardship now?
- Have you personally participated in environmental stewardship activities? Please describe what it consisted of, where it took place, and what it meant to you?
- Describe, in your own words, the impacts of environmental stewardship. What do you think are some of the most important impacts of environmental stewardship?
- Can you think of any other stewardship activities or actions that are missing from the cases presented in the chapter?
- What functions or site-types are missing from the subset of cases presented?
- How could land ownership (e.g., privately owned, publicly owned, publicly accessible) affect the functions that a stewardship group focuses on?
- Does stewardship look different in more rural or suburban areas? If yes, how so?
- How might civic environmental groups differ in other countries with different governance structures?

PERSONAL STEWARDSHIP MAPPING

1. Print out one map of your city, town, or neighborhood on large paper (bike maps work well). This will be the base map for the entire class.
2. Hand out a sticky note or small piece of paper to everyone.

3. Have each student write a personal stewardship story of a time they did something to take care of the environment. This could fit into one of the functions outlined (e.g., cared for a street tree, participated in an environmental justice campaign, etc.), or it could be something more general, like a story about visiting one of their favorite parks and cleaning up litter. The stories can be short but should be personal and capture the reasons behind the stewardship act and the feelings associated with it.
4. Take turns inviting the students to share their story and then place it on the map wherever their story took place. The stories can either be stuck on top of each other if the map gets crowded, or you can use a marker to indicate the exact geography and draw a line to the corresponding story.
5. Look for trends in the stories in terms of functions, site types, geographic location, and personal connections. What do you notice?

EXPLORING STEW-MAP DATA

1. Go to <https://www.nrs.fs.fed.us/STEW-MAP/data/>, and click the link to open the 2017 NYC STEW-MAP. Let the page load for a minute before closing the pop-up box. Turn off networks and points by un-checking the boxes on the left so that only “polygons” is checked. Note that you will need to select “Group—smaller turf” to see the groups below the citywide and boroughwide turfs.
2. Find all of the education groups in Brooklyn:
 - a. Select “Group – smaller turf” under polygons so that it is highlighted
 - b. Select “Education” under primary focus
 - c. Click “update filter”
 - d. Use zoom buttons on the map to center on Brooklyn and locate groups
 - e. Discuss: What kind of education are these groups working on?
3. Find all of the 501(c)(3) nonprofit groups focused on bike trails
 - a. Select “Group – smaller turf” under polygons so that it is highlighted
 - b. Select “Bike trails, greenway” under stewardship focus
 - c. Select 501(c)(3) in organization type
 - d. Click “update filter”
 - e. Use zoom buttons on the map locate groups
 - f. Discuss: Are these groups located in different areas? Did any of the groups come up in both searches? Why might that be the case?
4. Create your own filter to try to find one of the organizations mentioned in this chapter
 - a. Which other groups do they partner with?
 - b. Do they work in one turf or many?

ADDITIONAL RESOURCES FOR DISCUSSION

- STEW-MAP Multi-city web portal:
<https://www.nrs.fs.fed.us/stew-map>

- STEW-MAP General Technical Report:
<https://www.nrs.fs.fed.us/pubs/50447>
- STEW-MAP NYC 2017 survey protocol:
<https://www.nrs.fs.fed.us/STEWMAP/2017NYCSurvey.pdf>

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ENVIRONMENTAL ISSUES AND POLICY

Exploring Past, Present, and
Future Socioecological Relations

Monalisa Chatterjee

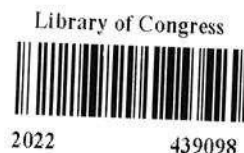
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