

Who Volunteers to Steward the Urban Forest in New York City?

An analysis of participants in MillionTreesNYC planting events

Environmental Stewardship Project White Paper #1

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Executive Summary

Who volunteers to steward the urban forest in New York City and how do volunteer stewards get involved in these activities?

This paper presents results from research on volunteer stewards at the MillionTreesNYC tree planting events in spring 2010, which were sponsored by the New York City Department of Parks and Recreation and the New York Restoration Project, a non-profit organization focused on enhancing underused green spaces throughout NYC. Although recent academic and policy studies have focused on the increasingly wide range of organizations working as stewards to conserve, manage, monitor, advocate for, or educate the public about the local environment, it remains unclear how individual citizens get involved in local stewardship initiatives. Such knowledge is needed by professionals working to manage environmental stewardship programs and by anyone seeking to understand better how the human infrastructure of environmental stewardship is established and maintained.

For this study, we surveyed a random sample of adult volunteers who participated in the MillionTreesNYC spring planting events in parks throughout New York City. The volunteers commemorated Earth Day by planting trees and mulching wooded areas during morning and early afternoon hours. The survey included questions about where the volunteers came from to participate, how they heard about the event, with whom they came to the event, what prior connections they had with local environmental stewardship organizations, and their levels of civic/political engagement prior to the event.

Demographics

Over half of the respondents of the study were women and most were relatively young (the median age was 28). Volunteer stewards tended to be white and well educated. In comparison to the New York City population as a whole, our sample population contains a greater percentage of whites, females, and highly educated people. These differences are consistent with national trends in voluntarism.

Politics and Civic Engagement

Politically, volunteer stewards tend to be more liberal than the American population. Volunteer stewards reported being engaged in all types of civic and political activities, from voting in an election to signing a petition. In most cases, the volunteer stewards were significantly more engaged in civic and political activities than the American population.

Environmental Stewardship

Although the majority of the volunteers at the MillionTreesNYC planting events were relatively inexperienced when it came to other stewardship activities, roughly one-fifth of them

demonstrated a high degree of prior engagement. Experienced volunteers had been to previous tree plantings, were members of local stewardship organizations, and took care of trees at other sites. They showed higher overall levels of civic engagement than the rest of the sample and overwhelmingly heard about the event through their affiliations with local stewardship organizations.

A comparably sized group of novice volunteers had never been to tree plantings before the event. These individuals were not members of local stewardship organizations and did not take care of trees at other sites. Personal ties played a much larger role for these novice volunteer stewards. They tended to hear about the event from their individual social networks comprised of family, friends, or colleagues. It is also worth noting that novice stewards were less civically engaged than the more experienced stewards.

Future Research

Our findings suggest that planting trees leads to better citizenship—in other words, the more a person is involved in environmental stewardship, the more s/he engages with other types of civic and political activities. To understand the directionality of this relationship, however, more research is needed. The next stage of this research project will collect data at the fall planting events of MillionTreesNYC to compare to volunteer stewards from the spring 2010 events. We will also be following up with a sample of volunteer stewards from the spring events to explore this relationship in more detail.

About the Study

This study was funded by a grant from the National Science Foundation (DEB-0948451). The grant, entitled *Understanding the Dynamic Connections Among Stewardship, Land Cover and Ecosystem Services in New York City's Urban Forest* examines physical and social changes in the environment of New York City over the past 25 years.

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Introduction

In recent years, academics and policymakers have examined environmentalism and social movement activity at the local level, highlighting the rising importance of environmental stewardship (see particularly U.S. EPA 2005, Corburn 2005; Horton 2004; Weber 2000; Kempton et al. 2001; Sirianni and Friedland 2001: chapter 3; Andrews and Edwards 2005; Kramer 2007; Svendsen and Campbell 2005, 2008; Fisher et al. 2010). Although these studies have focused on the increasingly wide range of organizations working as stewards to conserve, manage, monitor, advocate for, or educate the public about the local environment, it remains unclear how individual citizens get involved in local stewardship initiatives. As government agencies and civic organizations continue to provide crucial support for the human infrastructure of environmental stewardship, recent efforts to expand urban forests have mobilized a volunteer army to get their work done. In this context we define stewardship as the act of an individual or organization that takes care of the environment. These efforts can include participating in tree planting, care or maintenance. Participation in these activities can be conducted as a volunteer or as part of a paid program of professionalized service. Analyzing data on volunteer stewards involved with the MillionTreesNYC campaign in New York City, this whitepaper explores who participates in such efforts to plant and maintain the urban forest and what draws them to environmental stewardship.

Particularly since the 1990s, many scholars have conducted extensive research on the apparent withdrawal of Americans from political and social life. Contrary to earlier observations of a vibrant civic life in the United States (see particularly Tocqueville 1966; see also Almond and Verba 1963; Ladd 1999; Schofer and Fourcade-Gourinchas 2001; Wuthnow 1991), much of this work finds that citizens have become disconnected from one another and detached from the

world around them (for a full discussion of social isolation in America see McPherson et al. 2006). In the words of Putnam: “Americans today feel vaguely and uncomfortably disconnected” (2000: 402; see also Putnam 1995, 1996; but see Paxton 1999, 2002; Rotolo 1999; Fischer 2005). Similarly, in the introduction to the updated edition of their well-known work on *individualism and commitment in American life*, Bellah and his colleagues find public life in America is fading and there is increasing pressure to disengage from civil society (1996). These conclusions have been corroborated by scholars who work on multiple aspects of the political system—from voting behavior (e.g. Levine and Lopez 2002; Nie et al. 1979; Piven and Cloward 1988, 2000; Reiter 1979; Verba et al. 1995; but see McDonald and Popkin 2001), to social capital, political trust, volunteering and participation more broadly defined (e.g. Almond and Verba 1963; Putnam 1995, 1996, 2000; Eliasoph 1998; see also Smith 1994).

The results are, by no means, universal. A number of scholars have come to conflicting conclusions (e.g. Boyte and Kari 1996; Eckstein 2001; Paxton 1999; Rotolo 1999; Skocpol 1996, 1999, 2003; Weir and Ganz 1997; Skocpol and Fiorina 1999; Skocpol et al. 2000; Sirianni and Friedland 2001; Wuthnow 2004), in many cases focusing on the ways that Americans *do* engage civically. Some of these studies have looked at how disconnected individuals become civically engaged as a means of self-fulfillment (Lichterman 1995, 1996; Westphal 2003; Wuthnow 1991, 1998; see also McCarthy 1987; Jasper and Poulsen 1995). Wuthnow, for example, finds that “individualism does not necessarily contradict holding altruistic values and engaging in a wide variety of caring and community-service activities” (1991: 23; see also 1998). Similarly, in his work on personalism and activism in America, Lichterman finds that an individual’s “personalized form of political commitment underlies significant portions of numerous recent grassroots movements in the US” (1996: 5).

At the same time, a number of studies conducted by non-profit organizations in the United States also find Americans to be civically engaged, with some noting a trend toward increased voluntarism (e.g. Bureau of Labor Statistics 2010; New York Cares 2009; New York City Nonprofits Project 2002; United Way of New York City 2005; Wing et al. 2009). A study supported by the Urban Institute reports that over a quarter of the American population (about 27%) have volunteered at least once in a year for a charitable organization. The study finds that this rate has been relatively steady over the past decade (Wing et. al 2009; but see Bureau of Labor Statistics 2010).

Studies of volunteering in New York City have come to more detailed conclusions. A three-year analysis of New York City's nonprofit sector, for example, indicates that there was a general increase in voluntarism in the City in the early 2000s, and that most nonprofits were still not meeting their demand for volunteers (New York City Nonprofits Project 2002). These findings were echoed in the United Way's June 2005 study of New York City's "evolving human service delivery system" (2005). According to the report, voluntarism has gone up within New York City. However, even though the number of volunteers has increased, the need for volunteers to assist non-profit organizations in their work has also risen (United Way of New York City 2005). These findings are corroborated by a 2009 study of trends amongst participants at one of the largest volunteer recruitment organizations in the City: New York Cares. Studying internal data from 2004 to 2008, New York Cares found a 76.5% increase in new volunteers. In this same time period, the study also found that individual volunteers took part in more projects overall (New York Cares 2009).

This whitepaper explores what drives urban voluntarism, with a specific focus on environmental stewardship within one locality. In it, we present the results of the first wave of a

study of individuals that participated in MillionTreesNYC planting days in New York City. The MillionTreesNYC campaign is “a cornerstone of Mayor [Michael] Bloomberg’s PlaNYC vision to establish a healthier, more sustainable New York City.”¹ The goal of the campaign is to plant and care for one million new trees in New York City by 2017. The project is being carried out through a formal partnership between New York City’s Department of Parks and Recreation (NYC Parks) and the New York Restoration Project (NYRP), a civil society organization focused on enhancing underused green spaces throughout the city. NYRP has a stated goal of instilling “both individual and civic respect for nature and responsibility for contributing to New York City’s environmental sustainability.”² In addition, the City has linked its recruitment efforts for the MillionTreesNYC campaign to its citywide volunteer program—NYC Service. This program seeks to “ensure every young person in New York City is taught about civic engagement and has an opportunity to serve.”³ The MillionTreesNYC campaign is an example of an urban environmental stewardship project that formally connects the work of government agencies with civil society organizations and explicitly promotes environmental stewardship as an act of civic engagement.

In order to understand better the ways that individual citizens get involved in stewardship initiatives through the MillionTreesNYC campaign, we studied volunteers who participated in the spring 2010 tree planting day. Through analysis of survey responses, we learn who is participating as volunteer stewards in New York City. We also learn about how volunteer

¹ See www.milliontreesnyc.org/html/newsroom/pr_spring_planting_day.shtml (Accessed 15 June 2010).

² See www.nyrp.org/About/Our_Mission_and_Strategic_Plan (Accessed 15 June 2010).

³ www.milliontreesnyc.org/html/newsroom/pr_spring_planting_day.shtml (Accessed 16 July 2010).

stewards are mobilized and how they are connected to local environmental groups as well as to one-another. In the sections that follow, we describe our methods of analysis and the general characteristics of volunteers at the planting days. We then present analyses of the demographics of the volunteer stewards, their political and civic engagement, as well as their overall involvement in environmental stewardship in New York City. These findings are derived from data that represents the first stage of a multi-stage research project. As such, they comprise a preliminary discussion of the role of volunteer stewards in the system of urban environmental management in New York City.

Data and Methods

Data were collected from a random sample of volunteers who participated in the MillionTreesNYC spring planting day on 24 April 2010.⁴ The event was held on the Saturday after Earth Day to maximize participation. During the event, volunteers commemorated Earth Day by planting trees at twelve sites throughout New York City. The purpose of the volunteer planting event was to make “New York City greener and greater” by planting trees and mulching in wooded areas.⁵ A one page (two-sided) survey was administered to volunteer planters as they registered and participated in the events from 9am-2:30pm around the City.

⁴ For more information on the Initiative, go to www.milliontreesnyc.org (accessed 15 June 2010).

⁵ See www.milliontreesnyc.org/html/involved/spring_planting_2010_registration.shtml (accessed 15 June 2010). Those sites where volunteers were recruited by other organizations are not listed on this public website.

Site Selection

Due to the project's research focus on understanding volunteer stewards and the project's Human Subjects Protocol,⁶ which required that all participants in the study be over the age of 18, five sites that were being coordinated with specific schools and Boy Scout troops were not included in the study. Also, because the focus of this research is to understand volunteer stewardship, the New York Botanic Garden site, which coordinated employees to plant trees, was also removed from the sample. As a result, data were collected at six volunteer planting sites throughout New York City. The sites were located in four of the five boroughs of New York City: Brooklyn, Queens, Staten Island, and the Bronx. All of the sites were on the grounds of medium to large-sized public parks. The sampling methodology is described in detail in the section that follows.

The Volunteer Stewardship Survey (The Survey) was designed to be short and non-invasive so as to facilitate data collection in the field and encourage the widest possible participation among volunteers. The questions focus on how individual volunteers got involved and engaged with the system of urban environmental stewardship in New York City. The survey includes questions about where the volunteers came from, how they heard about the event, with whom they came to the event, what prior connections they had with local environmental stewardship organizations, and their levels of civic/political engagement prior to the event. The civic engagement questions were based in part on the "political activity" section of the General Social Survey's cumulative file (1972-2008) and on portions of the Roper Center Civic and Political Trends Data (1973-1994). Results are also compared to the findings of the Roper Center

⁶ Data collection was conducted in accordance with Columbia University policies on the research on Human Subjects (IRB Protocol #AAAF1445).

Social Capital Community Survey (2006) and the CIRCLE Civic and Political Health of the Nation Survey (2006).

Random Survey of Volunteer Stewards

Volunteer stewards were randomly surveyed at the spring planting event at six sites throughout New York City. Consistent with the methodology employed by studies of activism and protest around the world (e.g. Bédoyan et al., 2004; Fisher et al., 2005; Fisher 2006, 2010; Heaney and Rojas, 2008), survey participants were chosen using a field approximation of random selection at the events. Because the field situations varied somewhat, random selection was achieved by choosing every third adult volunteer queuing up to register, or choosing every third person who was waiting to get coffee or receive instructions as determined by the researcher working in a particular area.

Overall, 202 volunteers were randomly selected from an estimated 571 eligible registered volunteers (eligible volunteers are defined as those who were above the age of 18) to take the survey at the six research sites. Of the sample, 193 stewards—or 95.5 percent—agreed to participate in the survey. In total, nine people refused to participate in the study, representing an overall refusal rate of 4.5 percent. Table 1 presents an overview of the volunteer planting sites included in the study, along with the response and refusal rates at each site.

Table 1: Volunteer Stewards by Research Site

Site (Park Name/Borough)	Total Adult Volunteers	Completed Surveys	Refusals
Bronx River Park/ Bronx	45	14	0
Spring Creek/ Brooklyn	46	15	0
Roy Wilkins Park/ Queens	71	17	1
Clove Lakes/ Staten Island	139	34	3
Ocean Breeze/ Staten Island	90	51	3
Wolfe’s Pond/ Staten Island	180	62	2
Total	571	193 (29.6%)	9 (4.5%)

Data from all of the research sites were aggregated into a spreadsheet and, where appropriate, given a numerical code. Data were analyzed using PASW Statistics 17 (SPSS) statistical software. In the pages that follow, we present the results of our analysis of volunteer stewards in New York City.

Results

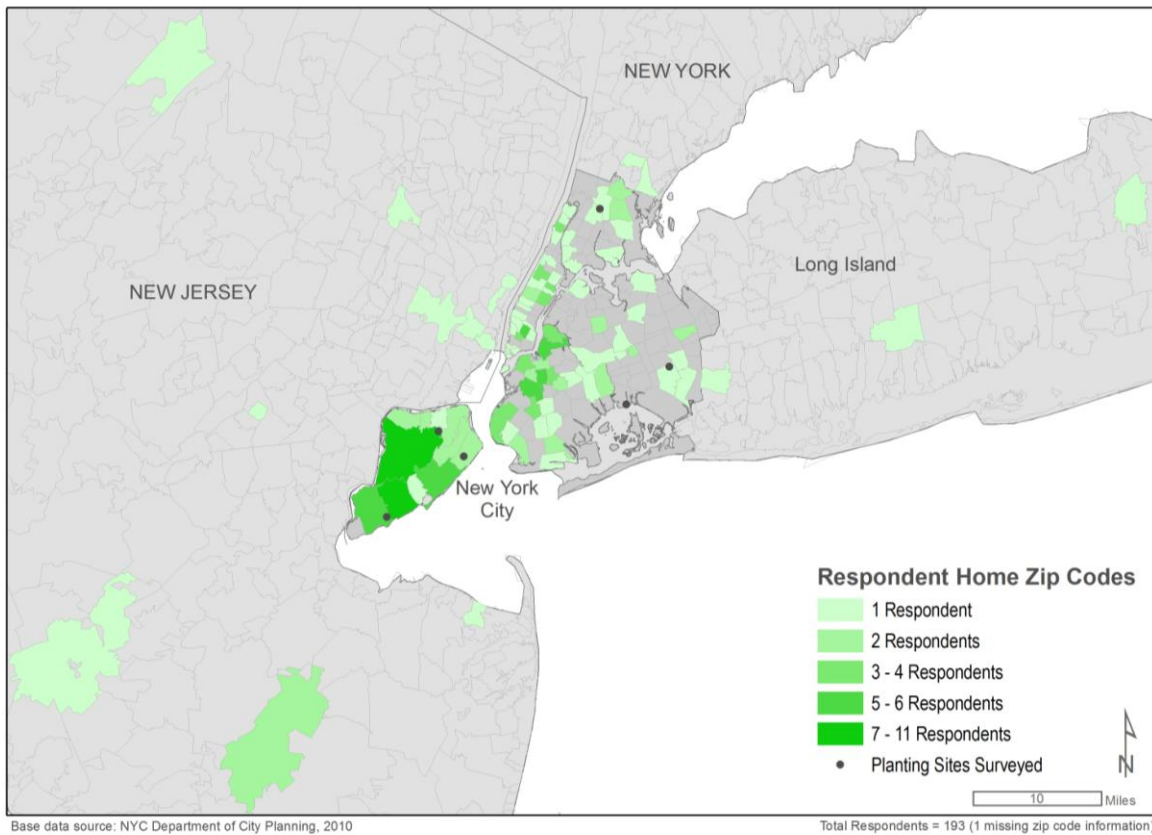
We focus on three main themes in the findings of this study of volunteer stewards in New York City. In order to analyze who volunteer stewards of the urban forest are, we begin by providing some general demographic information on our sample population. We compare these demographics to citywide and national trends. Next, we explore the civic and political engagement of volunteer stewards in our sample. In this section, we also compare the sample to the national population. Then, we discuss volunteers’ engagement with environmental stewardship activities outside of the MillionTreesNYC planting days. By exploring the organizational affiliations, level of prior experience with tree care, and the means by which volunteers were recruited to the event, we take a first step in understanding the individual and

organizational dynamics that shape the wider field of environmental stewardship. Finally, we discuss how these findings relate to one another.

Demographics

Participants in the 2010 MillionTreesNYC Spring Planting Day came from all five boroughs of New York City, as well as from nearby suburban locations in New Jersey, Long Island and Westchester County. Figure 1 presents the home ZIP codes of the volunteer stewards participating in the study.

Figure 1: Home ZIP Codes of Volunteer Stewards



Over half of the respondents to the study were women (56%), 40% were men, and 4% did not specify their gender. The mean age of the volunteer stewards was 32 (the median age was 28).⁷ About half of the respondents were white (51.3%). Of those who responded to questions about their racial/ethnic backgrounds, about a fifth reported being Hispanic (19.2%), and almost equal numbers of volunteers reported being Asian or Black (9.8% and 8.8% respectively). Respondents tended to be well educated. In fact, a quarter of the respondents reported having completed a graduate degree. Almost forty percent reported holding a university degree, and about a third of those respondents with less than a university degree reported that they were enrolled as students.

When compared to the population of New York City, our sample of volunteer stewards contained a greater percentage of whites, females, and highly educated people. In contrast to the 63.2% of our respondents who hold a university, graduate or professional degree, only 38.5% of the New York City population has achieved this level of educational attainment. Within the sample of volunteer stewards, there is an under-representation of blacks (8.8% of our sample versus 25.1 % of the New York City population). Other racial and ethnic groups are far more comparable, though minorities are underrepresented in all categories of the volunteer stewards. The gender ratio of the sample population is slightly skewed toward females when compared to the New York City population (roughly 3% more females and 8% fewer males in our sample). Table 2 presents the general demographic characteristics of the volunteer stewards in comparison with the New York City population.

⁷ As has been previously noted, only volunteers over 18 years of age were included in the study.

Table 2: Volunteer Stewards versus the New York City Population

	Percent of Volunteer Stewards	Percent in New York City⁸	Difference
Race/Ethnicity			
White	51.3%	44.6%	+6.7%
Black	8.8%	25.1%	-16.3%
Asian	9.8%	11.8%	-2.0%
Hispanic ⁹	19.2%	27.5%	-8.3%
Native American	1.0%	0.4%	+0.6%
Missing Values	9.8%		
Gender			
Male	39.9%	47.7%	-7.8%
Female	55.4%	52.3%	+3.1%
Missing Values	4.7%		
Education			
Some High School	2.1%	10.4%	-8.3%
High School	11.9%	26.6%	-14.7%
Some University	19.7%	13.5%	+6.2%
University	37.8%	25.2%	+12.6%
Graduate or Professional School	25.4%	13.3%	+12.1%

The demographic differences between our sample of volunteer stewards and New York City as a whole are reflective of national trends in voluntarism. According to a Bureau of Labor Statistics report (2008), women tend to volunteer at a higher rate than men in the United States. The same is true for individuals with higher educational attainment. In terms of race and ethnicity, the report states, “Whites continued to volunteer at a higher rate (27.9 percent) than

⁸ Source: 2006-2008 American Community Survey 3-Year Estimates for New York City Boroughs. Note that these data include respondents under 18, which may result in over-estimation of some differences between the populations as the survey sample does not include respondents under 18. This point is particularly important when looking at educational attainment, as younger respondents necessarily have lower educational attainment levels.

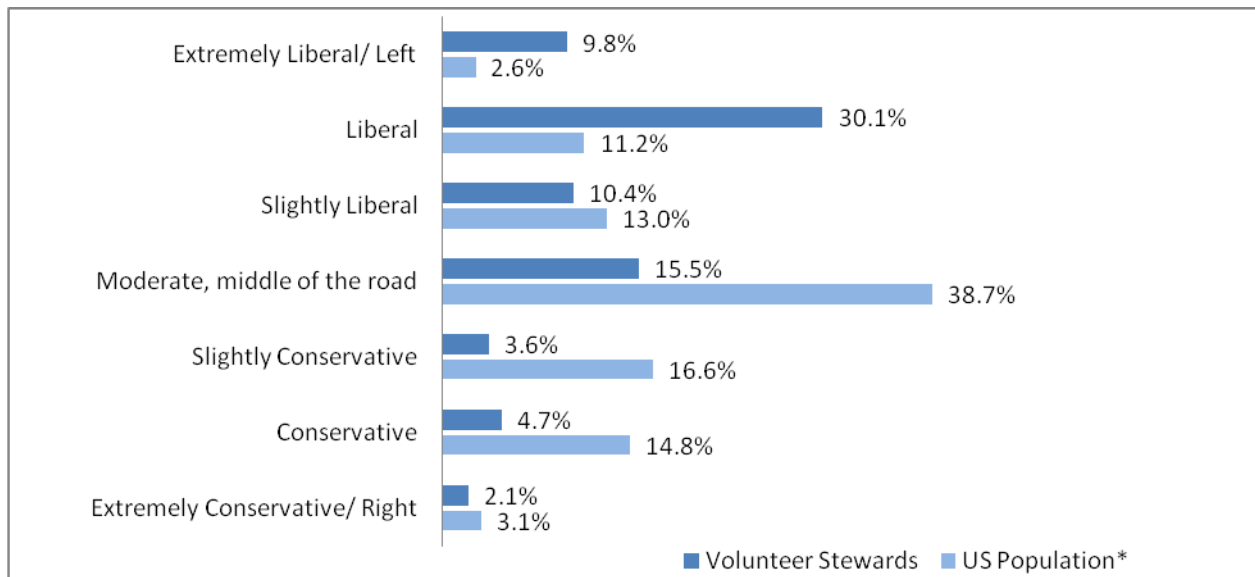
⁹ Note that Hispanic is reported separately from race as an Ethnicity in the census data. As such, the race/ethnicity totals for the census categories add up to more than 100%.

blacks (18.2 percent) and Asians (17.7 percent). Among Hispanics, 13.5 percent volunteered.” These findings are also consistent with the report by New York Cares, which found the majority of their volunteers to be female, white, and educated (2009: 16).

Politics and Civic Engagement

Politically, volunteer stewards tend to be more liberal than the American population as a whole. Of those respondents who specified their political views, two-thirds (66%) identified themselves as extremely liberal, liberal, or somewhat liberal. In contrast, 13.6% of respondents identified themselves as extremely conservative, conservative, or slightly conservative. The remaining 20.4% of respondents identified themselves as moderate. Figure 2 presents the distribution of respondents’ political views compared with national trends reported in the General Social Survey.

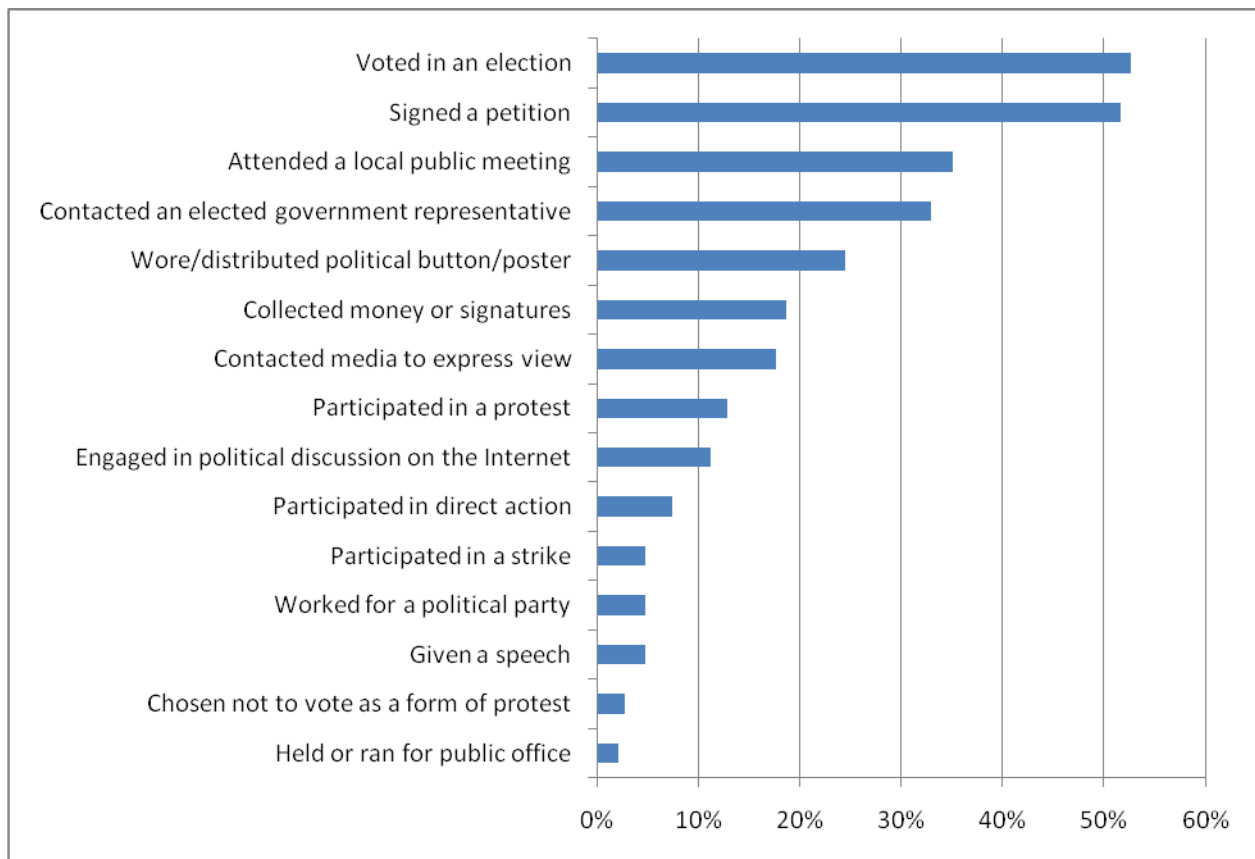
Figure 2: Political Views of Volunteer Stewards Compared with the US Population



*Results for US Population are taken from the the General Social Survey, cumulative file 1972-2008

Volunteer stewards reported being engaged in all types of civic and political activities. More than half of the sample reported having voted in an election (52.7%), during a year that did not include a national election. Also, more than half of the volunteer stewards had signed a petition in the past year (51.6%). Figure 3 presents the results of the civic and political engagement questions.¹⁰

Figure 3: Civic and Political Engagement of Volunteer Stewards in the Past Year



In most cases, when comparing the sample of volunteer stewards at MillionTreesNYC planting days with results from national surveys, the volunteer stewards were significantly more

¹⁰ These types of civic engagement activities are not meant to represent an exhaustive list; they were selected for importance to the research question and comparability to national studies.

engaged in civic and political activities than the American population. Specifically, volunteer stewards had contacted elected officials, contacted or appeared in the media to express their political views, attended a meeting on local political issues, signed a petition, engaged in political discussion on the Internet, participated in a protest, worked for a political party, given a speech, or held/ran for public office more frequently than the national sample. Volunteer stewards were only less likely than the American population to have participated in a strike or to have worn or posted a button/flyer/sticker/poster for a political campaign. Table 3 presents these findings indicating the statistical significance of the comparison of means between the two samples.

Table 3: Comparing the Engagement of Volunteer Stewards to a National Sample

Civic Action	Percent of Volunteer Stewards	Percent of American Population
Signed a petition(a)	51.6% ***	35.2%
Contacted an elected government representative (a)	33.0% ***	22.3%
Attended a public, town, community board, or school meeting (b)	35.1%***	24%
Wore or posted a button/flyer/sticker/poster of political campaign (d)	24.5***	29.3%
Participated in a protest (a)	12.8% ***	5.9%
Contacted the media to express view (a) ¹¹	17.6% *	5.6%
Gave a speech (c)	4.8%***	4.4%
Held or ran for public office (c)	2.1%*	.7%
Engaged in political discussion on the Internet (a)	11.2% ***	5.4%
Worked for a political party (c)	4.8% **	18.7%
Participated in a strike(a)	4.8% **	9.5%

* t-test is significant at the 0.1 level.

** t-test is significant at the 0.01 level.

*** t-test is significant at the 0.001 level.

(a) National sample data from the General Social Survey, cumulative file 1972-2008, see www.norc.umd.edu/GSS+Website/ (Accessed 16 June 2010).

(b) National sample data from the Roper Social Capital Community Survey, 2006, see http://www.ropercenter.uconn.edu/data_access/data/datasets/social_capital_community_survey_2006.html (Accessed 24 June 2010).

(c) National sample data from the Roper Social and Political Trends Data, 1973-1994, see http://www.ropercenter.uconn.edu/data_access/data/datasets/roper_trends.html (accessed 24 June 2010).

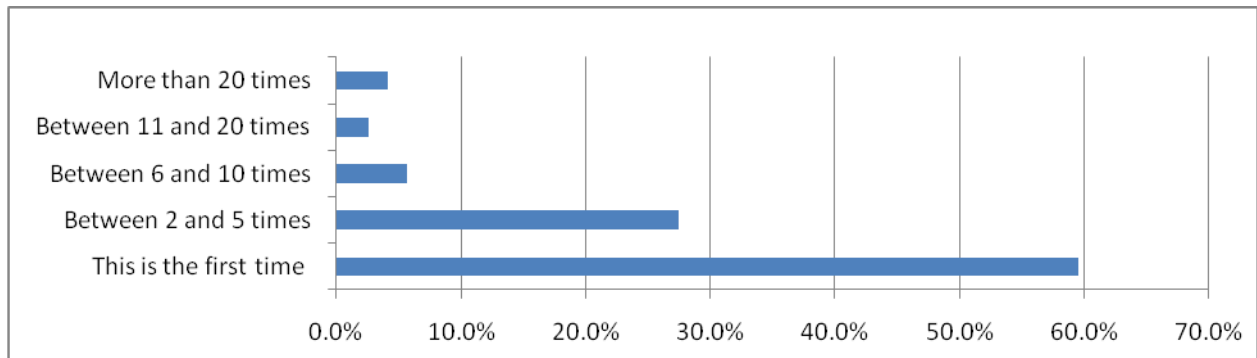
(d) National sample data from the CIRCLE Civic and Political Health of the Nation Survey, 2006, see http://www.civicyouth.org/research/products/youth_index.htm (accessed 24 June 2010).

¹¹ The “contacted the media to express view” variable reported here is derived from three survey question responses, aggregated to align with national survey question formats. The questions were: In the past year have you: 1) Written a letter to a newspaper 2)Written an article for a magazine or newspaper 3) Contacted the national or local media in another way.

Environmental Stewardship

With regard to their involvement in other environmental stewardship activities, the majority of the volunteers at the MillionTreesNYC planting event were relatively inexperienced: more than half of those surveyed responded that the event was the first time they had participated in a planting day (59.6%), and the overwhelming majority was not involved in the MillionTreesNYC Stewardship Corps (92.7%).¹² Looking beyond activities that were specifically related to the MillionTreesNYC campaign, more than half of the volunteers reported taking care of trees at another site (55.4%),¹³ and about a third were members of local environmental stewardship organizations (35.2%). The following three figures present the distribution of respondents to questions related to previous stewardship experience.

Figure 4: Previous Involvement in Tree Planting Events



¹² Although most volunteers reported not being a member of the MillionTreesNYC Stewardship Corps, as can be seen in Figure 5, a number of them were members of groups that comprise the Stewardship Corps.

¹³ Responses for this question include taking care of trees at other MillionTreesNYC sites as well as at other sites.

Figure 5: Membership in Local Stewardship Groups

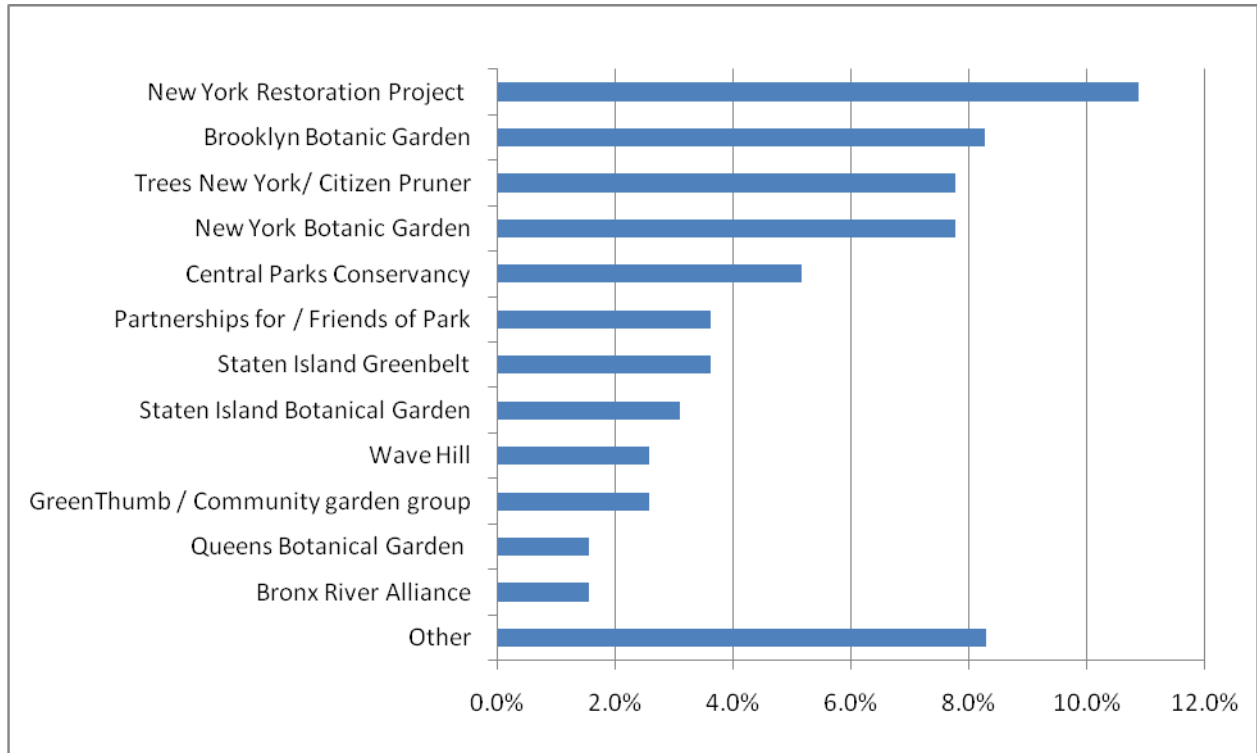
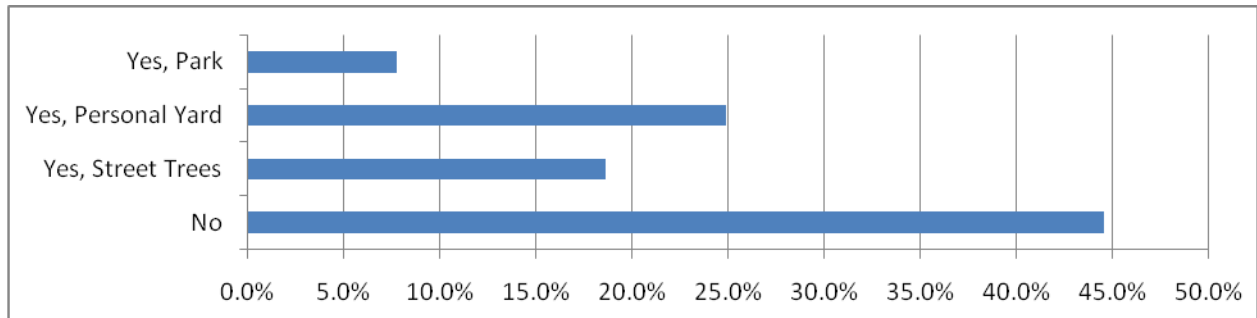


Figure 6: Experience with Stewarding Trees at Other Sites



When we look at the relationship among these stewardship variables, there are significant differences between those volunteers who were previously engaged and those who were not. Specifically, those volunteers who reported attending a high number (>20) of tree plantings in the past five years were very likely (87.5%) to be a member of a local stewardship organization, while most (78.3%) volunteers who were attending their first planting were not members. As

well, all of the highly engaged volunteers who had attended more than 20 tree plantings in the past five years also reported taking care of trees at other sites, and most (77.1%) of the volunteers who did not take care of trees at other sites were also not members of local stewardship groups. In short, the more plantings a respondent had attended, the more likely they were to be a member of a local stewardship organization and to take care of trees at other sites. Additionally, members of local stewardship organizations, whether experienced planters or not, were more likely to take care of trees at other sites. Tables 4, 5, and 6 summarize these findings. It is also worth noting that all three of these variables that measure the volunteers' levels of environmental stewardship are highly correlated ($p < 0.01$).

Table 4: Planting Experience and Organizational Membership

	Is member of stewardship organization		Pearson's χ^2
	Yes	No	
First Planting Attended	21.7% (25)	78.3% (90)	
Attended Between 2 and 5 Plantings	43.4% (23)	56.6% (30)	
Attended Between 6 and 10 Plantings	81.8% (9)	18.2% (2)	
Attended Between 11 and 20 Plantings	80.0% (4)	20.0% (1)	
Attended More than 20 Plantings	87.5% (7)	12.5% (1)	
			35.068***

- * Chi-square is significant at the 0.1 level.
- ** Chi-square is significant at the 0.01 level.
- *** Chi-square is significant at the 0.001 level.

Table 5: Planting Experience and Tree Care

	Takes Care of Trees at Other Site		Pearson's χ^2
	Yes	No	
First Planting Attended	26.4% (29)	73.6% (81)	
Attended Between 2 and 5 Plantings	54.9% (28)	45.1% (23)	
Attended Between 6 and 10 Plantings	66.7% (6)	33.3% (3)	
Attended Between 11 and 20 Plantings	80.0% (4)	20.0% (1)	
Attended More than 20 Plantings	100% (8)	0.0% (0)	
			30.927***

- * Chi-square is significant at the 0.1 level.
- ** Chi-square is significant at the 0.01 level.
- *** Chi-square is significant at the 0.001 level.

Table 6: Tree Care and Organizational Membership

	Is member of stewardship organization		Pearson's χ^2
	Yes	No	
Takes care of trees at another site	54.7% (41)	45.3% (34)	
Does not take care of trees at another site	22.9% (25)	77.1% (84)	
			19.447***

- * Chi-square is significant at the 0.1 level.
- ** Chi-square is significant at the 0.01 level.
- *** Chi-square is significant at the 0.001 level.

Mobilizing Volunteer Stewards

Social ties to personal and organizational networks played an important role in mobilizing New Yorkers to participate as volunteer stewards. In other words, citizens came out to participate in

this event because they had heard about it from friends and family members, as well as from organizations with which they were affiliated. Consistent with the results of recent studies of activism and protest, which focus on the different ways that people mobilize (e.g. Fisher and Boekkoi 2010; Fisher et al. 2005), there are interesting divergences in the roles played by personal and organizational networks among volunteer stewards at the MillionTreesNYC planting event. In order to explore these separate roles, the following sections examine how volunteers heard about the event and with whom they came to the event.

How Volunteer Stewards Heard About the Event. Direct personal and organizational ties were the dominant method for recruiting people to the MillionTreesNYC planting day. In fact, 91.2 % of the volunteer stewards reported hearing about the event from people they knew or organizations with which they were affiliated. The most common way that volunteers heard about the tree planting event was through school or work (34.7%). Many volunteers also heard through personal outreach from an organization or group (28.5%), family and friends (20.7%), or an e-mail message (7.3%). Table 7 presents these results.

Table 7: How Volunteer Stewards Heard about the Event

	Number	Percent
School/ Work	67	34.7%
People from an organization/group	55	28.5%
Family/ Friends	40	20.7%
Web Site	27	14.0%
Newsletter of an organization/group	18	9.3%
E-mail/ Mailing list	14	7.3%
Other	13	6.7%
Newspaper	4	2.1%
Flyers or Posters	4	2.1%
Radio/ TV	1	0.5%

With Whom They Came to the Event. Social ties to organizations and individuals also played a significant role in how people got to the event (92.2% of respondents indicated that they came with an organization, friend, family member, or colleague). The largest percentage of volunteer stewards reported coming to the event with members of an organization (34.7%). Roughly comparable percentages of respondents came to the event with partners/family-members, or colleagues/co-students (28.5% and 28.0% respectively). In contrast, very few volunteer stewards (7.8%) reported coming to the event alone. Table 8 presents these findings.

Table 8: With Whom They Came

	Number	Percent
With Members of Organization	67	34.7%
Partner/Family	55	28.5%
Colleagues/Co-Students	54	28.0%
Friends/Neighbors	27	14.0%
Alone	15	7.8%

The role that social networks played in mobilizing volunteer stewards becomes even more pronounced when we look at the relationship between whether the volunteer knew a member of a local stewardship organization and the number of tree planting events that s/he had attended. Most (80.4%) first-time volunteers reported not knowing anyone who was a member of a local stewardship organization. However, most (76.9%) of the volunteers who had attended more than ten planting events in the past five years reported knowing a member of a local group. In a Pearson chi-square test comparing these variables, the results are very significant and the null hypothesis that volunteer stewards had the same planting experience no matter whether they knew a member of a stewardship organization is rejected. Table 9 presents these results.

Table 9: Planting Experience and Knows a Member of a Stewardship Organization

	Knows a member of a stewardship organization		Pearson's χ^2
	Yes	No	
First Planting Attended	19.6% (22)	80.4% (90)	
Attended Between 2 and 5 Plantings	35.8% (19)	64.2% (34)	
Attended Between 6 and 10 Plantings	40.0% (4)	60.0% (6)	
Attended Between 11 and 20 Plantings	80.0% (4)	20.0% (1)	
Attended More than 20 Plantings	75.0% (6)	25.0% (2)	
			20.981***

- * Chi-square is significant at the 0.1 level.
- ** Chi-square is significant at the 0.01 level.
- *** Chi-square is significant at the 0.001 level.

These findings provide even more support to the notion that stewardship organizations are essential drivers in mobilizing individual volunteer stewards: even if they are not members of a stewardship group themselves, *knowing* a member of such a group is strongly related to participation as a volunteer steward. Unlike these results, those participants who reported hearing about the event from friends or family members were not more likely to have attended numerous tree planting events. In other words, members of local stewardship groups mobilized experienced volunteer stewards for the MillionTreesNYC tree planting event through their personal social networks but they did not bring in new stewards.

In an ordinary least squares (OLS) regression analysis, we find that taking care of trees at other sites, being a member of a stewardship organization, and knowing a member of an environmental organization, are significant predictors of how many plantings a volunteer steward has attended. This regression equation yields an adjusted R-squared of .236. Table 10 presents these results.

TABLE 10: Multivariate Regression, Standardized Regression Coefficients and (Unstandardized Regression Coefficients) and Significance Level For Regression of Planting Experience on Selected Independent Variables (Dependent Variable= number of plantings attended, N =193)

Independent Variable	Final Model
Is a Member of Local Stewardship Organization	.238 (.501) ** .002
Knows a Member of a Local Stewardship Organization	.127 (.283) * .092
Takes Care of Trees at Other Sites	.284 (.583) *** .000
Constant	(1.135)
Adjusted R ²	.236

* Significant at the .1 level
 ** Significant at the .01 level
 *** Significant at the .001 level

How do Novices Mobilize? Although organizational networks play a significant role in mobilizing engaged stewards, those with no prior experience mobilized very differently. One fifth of the volunteer stewards (39 of the 193 respondents) were novices at the time of the tree planting event: they were not members of a local stewardship organization, they did not take care of trees at other sites, and they had never been to a tree planting event before 24 April 2010. For these volunteer stewards, none reported hearing about the event from an organization. Instead, most of them heard about the event from personal ties to friends or family members or colleagues at work or school (38.5% and 41% respectively). Similarly, most of the novice stewards traveled to the event with either partners/family members (38.5%) or friends/neighbors (25.6%). In addition, a third of the volunteers who came alone (5 of the 15) were novice stewards.

In all, personal ties play a much larger role for volunteer stewards who are novices. It is also worth noting that novice stewards scored significantly lower than the more experienced stewards on all of the measures of civic engagement except for voting in an election and participating in a strike. In other words, those volunteers with higher degrees of involvement in environmental stewardship also tended to engage more with stewardship organizations and with other civic and political activities.

Discussion and Conclusion

The MillionTreesNYC tree planting events brought out people with all levels of stewardship experience to participate as volunteers. Overall, they were a relatively engaged group of individuals. Comparing those volunteers with more stewardship experience to those who were novices provides some insights into the different mobilizing roles played by personal and organizational networks within the system of environmental stewardship. Further, the differences between experienced and novice stewards go well beyond stewardship activities like planting trees and joining environmental groups. They are also visible in overall levels of civic engagement.

Although the results of our analysis of volunteer stewards in New York City provide possible support for the claim that planting trees leads to better citizenship, more research is needed to understand the relationship between civic engagement and environmental stewardship. The next step of this project will explore this issue. In addition to collecting comparable data at the 2010 MillionTreesNYC fall tree planting event, we will follow-up with the volunteer stewards from the spring planting event six months after they participated. Through this next stage in the project, we will be able to explore the relationship between the experience of being a

volunteer tree steward and involvement in other stewardship activities, as well as broader civic engagement. In particular, we will be able to assess if these volunteer stewards continue to be engaged, if their engagement has expanded, and in what ways.

Beyond the next stages of this project, future research should explore if the relationships we observe in New York City hold elsewhere. Currently, a number of other cities in the United States and abroad are engaging in similar types of re-greening efforts that engage volunteer stewards. Also, this research leads to questions regarding the nature of civic engagement more broadly. It is unclear if the type of civic engagement studied in the project—planting trees—is the same as other types of civic engagement, such as working in a soup kitchen or volunteering for a political campaign. Future research should look at how different types of civic activities are related to the various activities associated with engaged citizenship. It is possible that planting trees leads to good citizens but working for a campaign does not or vice versa. Through an expanded study of such activities, we can unpack any differences among types of civic engagement and understand better what exactly makes good citizens.

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