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Examining Motivations and Recruitment Strategies for Urban Forestry Volunteers

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Abstract

Few studies in urban forestry have examined the motivations of urban forestry volunteers. In this research, two social psychological theories (Volunteer Functions Inventory and Volunteer Process Model) are utilized to examine motivations for participating in tree planting activities. The Volunteer Functions Inventory can be used to examine the needs, goals and motivations that individuals seek to fulfill through volunteerism. The Volunteer Process Model sheds light on the antecedents, experiences and consequences of volunteerism at multiple levels (individual, interpersonal, organizational, and societal). An understanding of volunteer motivations can aid practitioners in the development and implementation of participatory urban forestry programs that are attractive to stakeholders. We conducted a survey of volunteers who participated in a MillionTreesNYC volunteer planting event and a focus group of urban forestry practitioners. Survey results reveal that volunteers have varied motivations and a limited knowledge of the community level impacts of trees. Results from the focus group reveal that providing education about the benefits of trees and maintaining long-term communication with volunteers are frequently used strategies for engagement. However, the public's lack of knowledge about urban forestry and an inability to connect to audiences are practitioner-identified challenges for recruiting stakeholders to participate in their programs.

Keywords

Urban forestry; stakeholder engagement; volunteerism

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INTRODUCTION

The urban forest is a living infrastructure that provides health, economic and environmental benefits to cities and people living in urban areas. Many cities around the country have launched large-scale urban tree planting programs to enhance these benefits. For example, New York City launched the MillionTreesNYC (MTNYC) initiative in 2007 to plant one million trees across all five city boroughs by 2017 to increase the health and livability of the city as its population grows (MillionTreesNYC 2010a). Like other large-scale urban tree planting initiatives (Pincetl 2010), MTNYC is a public-private partnership in which the city government is partnering with non-profit organizations to plant and care for the trees. However, municipal and certified urban foresters working under the private-public partnership cannot feasibly provide adequate and timely care for every newly planted tree due to staff and budget constraints. In many municipalities, urban forests are managed by a combination of local government agencies (i.e. transportation, parks and recreation, public works, etc.), commercial arboriculture firms, and non-profit organizations (Dwyer et al. 2000; Dwyer et al. 2002; Schwab 2009; Elmendorf 2008; Austin 2002). Thus, stakeholders, such as residents, property owners, businesses and community organizations, are often invited to become involved in the planting and care of urban trees, especially as many cities have launched large-scale urban forestry programs (Pincetl 2010), similar to MillionTreesNYC (MTNYC) (MillionTreesNYC 2010a).

Urban forestry organizations and practitioners play a significant role in fostering stakeholder engagement because they can provide opportunities for people to become involved in the planting and care of urban trees. Since many stakeholders may not be initially interested in taking care of urban trees (Johnston and Shimada 2004), practitioners need to develop and implement programs that are designed to appeal to a wide range of audiences and interests.

There is an emergent body of literature about community-driven urban greening projects such as community gardening and urban and community forestry (e.g. Tidball and Krasny 2007; Tidball et al. 2010). While urban ecology researchers have called for additional investigations into community based collective acts of stewardship (e.g. Svendsen and Campbell 2008), an examination of the individual level factors that shape stakeholder engagement in stewardship is also needed. Individuals may have multiple and diverse motivations for becoming involved in urban forestry, some of which center on volunteerism. Psychological literature on volunteerism offers insight into the reasons why individuals may become involved in urban forestry activities, such as tree plantings, in their communities. For example, some people may plant a tree because they like to be outdoors, whereas other people may want to plant a tree to celebrate the birth of a child or to commemorate a historic event (e.g. Svendsen and Campbell 2010). Thus motivations to be involved in community greening projects, arise from a variety of reasons—some social and some environmental.

Understanding the nuances of personal motivations for volunteering in urban forestry projects can aid practitioners in designing opportunities that fulfill these motivations. Psychologists have studied volunteerism using a functionalist approach which examines the reasons why individuals choose to volunteer, and the types of needs and goals individuals seek to fulfill through volunteer service (Clary et al. 1998; Clary and Snyder 1999; Snyder and Omoto 2008). While a few studies have examined the motivations of urban forestry volunteers (Westphal 1993; Still and Gerhold 1997), researchers have not yet utilized the psychological literature on volunteerism to deeply explore these motivations. The Volunteer Process Model (VPM) (Snyder and Omoto 2008) and the Volunteer Functions Inventory (VFI) (Clary et al. 1998) are conceptual models that can shed light on the psychological underpinnings of the motivations of urban forestry volunteers.

This research is a preliminary exploration of the motivations of urban forestry volunteers, as well as an initial inventory of the strategies used by urban forestry organizations to recruit volunteers and

stakeholders in general. We analyze results from a survey of urban forestry volunteers and a focus group of practitioners in light of the VPM and the VFI. The following research questions guided our study: (1) What are the motivations of urban forestry volunteers? (2) What are the most effective strategies employed by urban forestry organizations to engage stakeholders? (3) Do the engagement strategies used by urban forestry organizations match the motivations of volunteers? Next, we provide a brief review of the existing literature on stakeholder engagement in urban forestry and volunteerism that framed our research study.

LITERATURE REVIEW

Urban forestry is defined as "the art, science and technology of managing trees and forest resources in and around urban community ecosystems for the physiological, sociological, economic and aesthetic benefits trees provide," (Helms 1998, p. 193). Urban forests and green spaces provide a myriad of benefits for individuals, communities and ecosystems in urban areas.

Trees and Urban Forests: Individual, Community, and Environmental Benefits

The presence of nature in and around urban environments has been associated with a number of health benefits for individuals. For example, window views of nature from an indoor environment have been found to decrease the rate of illness in prison populations (Moore 1981) and to decrease the length of hospital stay for recovering surgery patients (Ulrich 1984). Viewing nature through windows has also been attributed with increased attention span for college students living in dormitories (Tenessen and Cimprich 1996; Felsten 2009) and employees working in office spaces (Kaplan 1993). Green spaces near residential areas also provide health benefits. For example, apartment building tenants who had window views of trees in their apartments reported a greater sense of overall physical well being than did tenants without these views from the building (Kaplan 2001). Green spaces near home environments can also increase children's cognitive functioning (Wells 2000), help children cope with stressful life events (Wells and Evans 2003) and improve the self-discipline of inner-city children (Taylor et al. 2002). Spending time in natural surroundings by taking a walk in a park has also been shown to reduce attention fatigue for children (Faber-Taylor and Kuo 2009) and for adults (Berman et al. 2008).

In addition to individual health and cognitive benefits, urban trees and green spaces produce community level outcomes through the social activities that occur near or among treed areas. Researchers have examined the influence of trees and green spaces on the social interactions that occur among residents of public housing developments. Coley et al. (1997) found that residents tended to gather more frequently in outdoor spaces with trees and green spaces as compared to outdoor spaces without vegetation. Later studies found that vegetated spaces outside of apartment buildings facilitated the construction of social ties among residents in these buildings (Kuo et al. 1998; Sullivan et al. 2004). Residents who lived in greener buildings felt a greater sense of safety and community belonging than did residents who lived in buildings without these green spaces (Kuo et al. 1998).

Studies have empirically demonstrated that vegetation in urban landscapes is associated with lower crime rates The social gatherings in urban green spaces provide informal surveillance of these areas, which is known to be an effective deterrent for crime (see Kuo et al. 2001 for a review). Well-maintained vegetation in public spaces serves as a territorial marker that discourages criminal behavior (Brown and Altman 1983; Brown and Bentley 1994) by signifying that people care about the property and that someone may be more likely to notice mischief (Nassaur 1988). Higher levels of trees and green spaces outside apartment buildings were associated with fewer occurrences of violent and property crime in a public housing development in Chicago, Illinois (Kuo and Sullivan 2001). Additionally, the presence of large trees in a public right of way was correlated with lower levels of burglary and vandalism in a residential neighborhood in Portland, Oregon (Donovan and Prestemon 2010).

On the ecosystem level, urban trees provide beneficial ecological services, such as the promotion of biodiversity (Savard et al. 2001), the removal of air pollutants and carbon emissions (Nowak and Stevens 2006; Nowak and Crane 2002), the reduction of urban air temperatures (Akbari 2001) and the reduction of storm water runoff and nutrient loading (Matteo et al. 2006). For example, the services provided by New York City's urban forest, including carbon reduction, air pollution removal, noise reduction and reduction of emissions, have been valued at $47.5 million (Nowak et al. 2007).

The health, community and environmental benefits of urban trees play an important role in creating livable cities in urban areas. Currently, 81% of the U.S population resides in urban areas (World Bank 2009) and these areas are expected to experience increased population growth in coming decades (Grimm et al. 2008). Thus, the management of urban forests will be critical in order to sustain the benefits they provide. Since urban forest ecosystems and human communities are inherently intertwined, the engagement and involvement of stakeholders in urban forest management is viewed as the means through which these benefits can be maintained (Clark et al. 1997; Dwyer 2000; Dwyer et al. 2002; Konijnendijk and Randrup 2002; Applestrand 2002; Elmendorf 2008).

Stakeholder Engagement in Urban Forestry

Urban forest managers and practitioners play a significant role in catalyzing stakeholder engagement in urban forest management. Practitioners can provide many different types of opportunities for stakeholders to learn about and become involved in urban tree planting and stewardship (Austin 2002; Dwyer et al. 2002; Johnston and Shimada 2004). For example, urban forestry programs around the country, such as the Friends of the Urban Forest in San Francisco, California (Friends of the Urban Forest 2010) and the Friends of Trees in Portland, Oregon (Friends of Trees 2010), offer a suite of educational opportunities for stakeholders who wish to gain knowledge or hands-on skills related to tree planting and tree care. The opportunities for involvement are diverse, ranging from events or programs that last a few hours, such as volunteer tree planting events, to longer training programs on skills related to urban forest stewardship. One example of an urban forestry training program is the "Citizen Pruner" course offered by the non-profit organization TreesNY in New York City. Program participants take a four-week course to earn certification to legally prune street trees in the city (TreesNY 2010b). TreesNY and similar program models also train participants in street tree identification. Many municipal agencies, such as the New York City Department of Parks and Recreation, have recruited volunteers to assist city arborists in conducting street-tree inventories (NYC Department of Parks and Recreation 2010) because properly trained volunteers can be equally proficient as professional arborists in tree identification (Bloniarz and Ryan 1997).

Providing many different types of opportunities for stakeholders to become involved may foster long-term stakeholder engagement in urban forestry and ultimately, a sustainable urban forest (Clark et al. 1997). For example, a number of studies have examined the individual, community and environmental level outcomes of stakeholder involvement in the planting and caring of urban trees (Table 1). Individuals derive a personal sense of satisfaction from planting trees and from taking action that improves their community (Sommer et al. 1994; Summit and Sommer 1997; Grese et al. 2000). Community outcomes flow from the social interactions that occur between participants of tree planting events that are held within their neighborhood (Bloniarz and Ryan 1997; Summit and Sommer 1997; Dwyer et al. 2000; Westphal 2003; Elmendorf 2008). Community involvement in the planting and caring for trees can help to ensure the long-term survival of urban trees (Sklar and Ames 1985; Nowak et al. 1990). Data collected during the 2005 trees census in New York City revealed that newly planted trees that exhibited visible signs of stewardship (i.e. pruning, mulching, signage, etc.) experienced lower rates of mortality than did trees without evidence of stewardship (Henry et al. 2009; Lu et al. 2010).

Table 1. Outcomes of active engagement in urban forestry programs at the individual, community and ecosystem levels.

	Outcome	Author(s)
Individual level outcomes	Sense of ownership over trees	Sklar and Ames 1985
	Satisfaction with trees	Sommer et al. 1994
	Satisfaction from working with others	Summit and Sommer 1997; Grese et al. 2000; Austin 2002
	Sense of pride and accomplishment	Lipkis and Lipkis 1990; Westphal 2003
	New relationships formed	Summit and Sommer 1997
Community level outcomes	***Formation of proactive citizen groups****	Bloniarz and Ryan 1996; Westphal 2003; Dwyer et al. 2000
	Relationships initiated and/or strengthened	Summit and Sommer 1997
	Morale in post-disaster recovery	Tidball 2007; Tidball et al. 2010
	Increased community capacity*	Elmendorf 2008
Ecosystem level outcomes	Trees are maintained	Sklar and Ames 1985; Nowak et al. 1990
	Reduced street tree mortality	Henry et al. 2009; Lu et al. 2010
***Hypothesized outcomes**		

Urban forestry researchers have hypothesized about the community development outcomes that may result from stakeholder engagement in urban forestry. For example, Bloniarz and Ryan (1997) hypothesized that prolonged involvement in urban forestry projects can nurture the political voice of participants and foster the formation of proactive citizen groups that advocate for urban forestry issues. Summit and Sommer (1997) and Westphal (2003) argue that participating in tree plantings can help groups of residents gain the confidence needed to organize and tackle other issues of concern in their neighborhoods. Likewise, Elmendorf (2008) speculates that active involvement in urban forestry can improve the ability of residents to work together in the pursuit of a commonly held goal. Thus, while urban forestry can be a platform for people to get to know each other and for trees to be planted and cared for, it may also be a catalyst for individual and community development. Evidence for community development outcomes resulting from urban forestry programs has emerged from New Orleans, where volunteers and government agencies have planted thousands of trees in the wake of the devastation caused by Hurricane Katrina in 2005 (Tidball et al. 2010). In addition to the environmental benefits, the tree plantings have served to build morale among residents to rebuild their communities (Tidball 2007; Tidball et al. 2010).

Motivations for Volunteerism

Examining the processes through which individual stakeholders become involved in urban forestry through volunteerism can reveal how stakeholder interest and action in urban forestry is activated and sustained. The Volunteer Process Model (VPM) is a social psychological framework that addresses the antecedents, experiences and consequences of volunteerism at individual, interpersonal, organizational and societal levels (Snyder and Omoto 2008). For the purposes of the present study, we

will only focus on the individual and organizational levels (Table 2) (see Snyder and Omoto 2008 for a review of the entire VPM). Originally developed in the context of volunteerism for AIDS patients (Omoto and Snyder 1995), the VPM is concerned with the psychological reasoning behind people's decisions to volunteer and the motivation, needs and goals they hope to fulfill through volunteer service (Omoto and Snyder 1990; Omoto et al. 1993, Omoto and Snyder 1995). To better understand the motivations of individual volunteers, one can examine the antecedents stage of the VPM at the individual level, which depicts the factors that predict initial involvement in volunteerism, including personality characteristics, current life situation and personal motivations. The second stage of the model describes the factors that may improve (e.g. satisfaction with the activity, positive relationships with the volunteer organization) or hinder (e.g. stigmatization) the overall volunteer experience. The consequences stage of the VPM illustrates the consequences or outcomes that can result from volunteerism (Omoto and Snyder 1995; Snyder and Omoto 2008).

Table 2. The antecedents, experiences and consequences stages of the Volunteer Process Model at the individual and organizational levels.

Level of Analysis	Antecedents	Experiences	Consequences
Individual	- Personality - Motivation - Life circumstances	- Satisfaction - Social support - Organizational integration	- Knowledge and attitude change - Health
Agency/Organization	- Recruitment strategies - Training	- Organizational culture - Volunteer placement	- Volunteer retention - Work evaluation
Adapted from Snyder and Omoto 2008, p. 7			

Volunteer motivations play a significant role throughout each stage of the VPM and researchers have sought to understand volunteer motivations using a functional approach. In psychology, functionalism has been used to examine the personal and social purposes, needs and goals that are fulfilled by an individual's attitudes and behaviors (Snyder 1993; Omoto and Snyder 1995; Snyder and Omoto 2008). According to functional theories on behavior, different people may engage in the same behavior for different reasons and the same behavior may serve different functions for each individual (Katz 1960; Snyder 1993). Thus, a functional view of volunteerism holds that people may arrive at the same volunteer activity with different needs, goals and purposes they seek to fulfill (Snyder 1993; Omoto and Snyder 1995; Clary et al. 1998; Snyder and Omoto 2008).

Based on previous research on the functions served by attitudes and behaviors, Clary et al. (1998) theorized that six psychological functions could be fulfilled by volunteer service. These six functions are summarized in the Volunteer Functions Inventory (Table 3). The VFI is tool used to assess individual motivations for volunteerism (Clary et al. 1998) and it has been used to determine the motivations of individuals who participate in episodic volunteer activities with a non-profit organization (Allison et al. 2002), Habitat for Humanity volunteers (Okun and Shultz 2003) and for volunteers in youth sport activities (Kim et al. 2010). The psychometric properties of the VFI were validated in a Chinese-language version of the VFI that was used to assess the motivations of Chinese university students who served children, immigrants and senior citizens in need (Wu et al. 2007; Wu et al. 2009).

Table 3. The Volunteer Functions Inventory (VFI) and conceptual definitions of the possible psychological functions served for individual volunteers.

Function	Conceptual definition
Values	The individual volunteers in order to express or act upon important values that are important to them like humanitarianism
Understanding	The volunteer is seeking to learn more about the world or exercise skills that are often unused
Enhancement	The volunteer can grow and develop psychologically through volunteer activities
Career	The volunteer has the goal of gaining career-related experience through volunteering
Social	Volunteering allows an individual to strengthen his or her social relationships
Protective	The individual uses volunteering to reduce negative feelings such as guilt or to address personal problems
	Adapted from Clary and Snyder (1999, p. 157)

The VFI depicts a range of different motivations for volunteerism and demonstrates that people's motivations to volunteer are unique and diverse (Clary et al. 1998). In the antecedents stage of the VPM (Table 2), individuals will base their decision to volunteer on whether on the functions they seek to fulfill (Omoto and Snyder 1995; Snyder and Omoto 2008). Their decision to participate in a volunteer activity will, in part, be based on the messages they receive from the organization or agency hosting the activity. Individuals who receive messages about a volunteer program that directly relate to their motivations are more likely to make the decision to volunteer than individuals who receive messages that are inconsistent with their motivations (Clary et al. 1994). Thus, in the antecedents stage of the VPM at the organizational level (Table 2), volunteer programs should seek to match the messages of their recruitment strategies to the motivations of potential volunteers (Omoto and Snyder 1995; Snyder and Omoto 2008). Matching the message to the motivation can be an effective way to recruit volunteers (Clary et al. 1994; Omoto et al. 2000; Snyder 2009).

Volunteer motivations continue to play an important role in the experiences stage of the VPM (Table 2). When volunteers initially begin their service, they are often assigned to work on a specific task by the organization that has organized the volunteer activity or event (Snyder and Omoto 2008). As a volunteer participates in the activity, they will judge the degree to which the activity has fulfilled their motivations. A volunteer's degree of satisfaction may depend upon the organizational culture, such as how well they interacted with the organization and other volunteers, as well as by the level of support they receive from their friends and family. The fulfillment of volunteer motivations through functionally relevant activities and a high level of social support can lead to volunteer retention and a longer duration of service (Omoto and Snyder 1995; Clary et al. 1998; Davis et al. 2003; Houle et al. 2005; Snyder and Omoto 2008).

The fulfillment of volunteer motivations in the experiences stage of the VPM can lead to the beneficial outcomes of volunteerism for individuals and organizations in the consequences stage (Table 2). The outcomes of volunteerism at the individual level may include attitude and behavior change, knowledge gain, transformative learning experiences, and increased self-confidence (e.g. Snyder and Omoto 2008; Weinstein and Ryan 2010). If organizations have worked to provide opportunities for

volunteers that matched their motivations, organizations can expect higher rates of volunteer retention and transformative cognitive and learning outcomes (Snyder and Omoto 2008).

Motivations for Planting Trees and Volunteering in Urban Forestry

People may be motivated to participate in urban forestry activities due to volunteerism or they may have motivations that relate to other outcomes they hope to achieve that are not related to volunteerism. Previous studies have examined the motivations of volunteers involved in environmental stewardship (Miles et al. 1998; Ryan et al. 2001; Bruyere and Rappe 2007) but very few studies have specifically examined the motivations of urban forestry volunteers (Still and Gerhold 1997). One study of volunteers in urban forestry organizations in New York City and Philadelphia revealed that the desire for neighborhood improvement was a significant motivation, followed by desires for education and social interaction (Still and Gerhold 1997). This same study found that urban forestry volunteers preferred to engage in tree planting and tree care activities more so than lobbying or fundraising for urban forestry (Still and Gerhold 1997). Thus, people may be motivated to volunteer in urban forestry programs for a variety of reasons.

The desire to participate in a formal urban forestry program, or to be involved in tree planting or stewardship in general, may be shaped by personal "emotional, aesthetic and spiritual" values associated with trees (Westphal 1993). For many people, trees are symbols and icons of hope, vitality, history, cultural identity and connection to nature in various cultural contexts (Rival 1998; Jones and Cloke 2002). Furthermore, the planting of a tree is often viewed as a symbolic and meaningful act to commemorate significant personal life events, such as the birth of a child, an anniversary or a religious ceremony (Jones and Cloke 2002). Trees are also often planted to mark historic societal events. For example, following the tragic events of the September 11, 2001 terrorist attacks in New York City, many communities created "living memorials" that comprised of trees and other green spaces (Svendsen and Campbell 2005; Svendsen and Campbell 2010). Tree plantings have also occurred in New Orleans following the destruction of Hurricane Katrina. The plantings have served as symbols of rebirth and recovery for residents living in neighborhoods that experienced widespread destruction during the hurricane (Tidball et al 2010). In the context of significant events such as September 11th or Hurricane Katrina, tree plantings and other urban community greening activities have helped people and communities to grieve and heal after significant events, and ultimately to build more resilient communities (Tidball et al. 2010).

An urban forestry program, called "The Grove," has embraced the notion of tailoring outreach to a wide variety of possible motivations for planting trees. Originally launched by the Georgia Urban Forest Council, the Georgia Forestry Commission and the U.S. Forest Service, "The Grove" is an online social network that encourages residents of Georgia and twelve other states in the southern U.S. to plant and care for trees. "The Grove" website features a tool in which users can select a significant life event (e.g. a birthday, an anniversary, etc.) to commemorate by planting a tree. The online tool provides suggestions to users for tree species that best match the event they want to commemorate. For example, the website suggests planting a ginkgo tree to celebrating a 100th birthday because the tree symbolizes longevity (Georgia Urban Forest Council 2010a). Additionally, users of "The Grove" can share photographs and stories about the life events they have commemorated by planting trees (Georgia Urban Forest Council 2010b). Examining other ways in which urban forestry organizations can match the motivations of people to volunteer or to plant trees as part of organized programs may shed light on effective strategies for community engagement in urban forest stewardship.

Since people have varied motivations for planting a tree, urban forestry scholars have called for additional examination of the motivations of volunteers and potential participants in urban forestry programs (Hull and Gobster 2000; Austin 2002; Straka et al. 2005). The present study is a preliminary examination of the antecedent stage of the volunteer process at individual and organizational levels. The

intent of this study is to examine the motivations of volunteers for engaging in urban forestry in the context of formal programs or events, as well as the strategies that urban forestry practitioners use to recruit volunteers and to engage stakeholders. Understanding motivations to volunteer to plant trees, as well as the strategies used to recruit volunteers to participate in urban forestry programs, allows us to measure whether the strategies used match the motivations of volunteers. Furthermore, this study will also investigate the challenges that practitioners face in their efforts to engage stakeholders.

METHODS

Face-to-Face (On-site) Survey of Volunteers

A face-to-face survey of volunteers was administered on-site at a MTNYC volunteer tree-planting event held in October 2009. The on-site survey was conducted at two parks in Brooklyn, New York that were included in the MTNYC volunteer tree planting day event: (1) Floyd Bennett Field and (2) Marine Park. The purpose of the on-site survey was to evaluate individual motivations for participating in a volunteer tree-planting event. We viewed the MTNYC tree planting event as the best place to directly reach volunteers while they were engaged in a volunteer activity. Since we did not want to impede upon the actual tree planting activity, we felt that a face-to-face (on-site) survey with open-ended questions was the most efficient and effective way to survey volunteers because this method prevented the need for volunteers to write their responses down.

Volunteer turnout on the day of the event was much lower than anticipated due to inclement weather. Surveyors interviewed all volunteers 18 years of age or older (N = 30) who were present at both sites. Eighteen volunteers (60%) were surveyed at the Marine Park planting site and 12 volunteers (40%) were surveyed at the Floyd Bennett Field planting site. Trained members of the research team approached volunteers and read them a prepared script explaining that the purpose of the survey was to gather information about people's views toward trees in New York City and that the information would be used to develop future educational activities. If the volunteer agreed to participate, the surveyor read each of the questions on the survey to volunteers and recorded their responses in writing. Volunteers were surveyed during water and snack breaks to avoid interference with the physical tree planting activity and the questionnaire took five to ten minutes to complete. Volunteers were not compensated for participating in the survey.

The questionnaire collected information about basic demographics (gender, race, ethnicity) and included nine open-ended questions about individual motivations for participating in the event, perceived impacts of urban trees in parks and neighborhoods and intentions for future participation in tree planting events (Appendix 1). Responses to open-ended questions were coded thematically (Appendix 2). Survey data was entered and analyzed using SPSS, quantitative analysis software. Due to a small sample size, statistical tests were not conducted and only descriptive statistics are presented. Data from the Marine Park and the Floyd Bennett Field survey sites were combined during analysis because no differences were observed between the two groups. Results are presented for the thematic categories with the highest frequency of response in the survey instrument (in most cases these are the top 3-5 codes).

Focus Group of Urban Forestry Practitioners

A focus group discussion with 23 urban forestry practitioners was conducted at the national Partners in Community Forestry conference held in Portland, Oregon in November 2009. Hosted annually by the Arbor Day Foundation and the Home Depot Foundation, the Partners in Community Forestry conference serves as an educational and networking opportunity for urban forestry practitioners (Arbor Day Foundation 2009). At the beginning of the focus group session, participants answered a 3 question open-ended written questionnaire about 1) the stakeholder engagement strategies used by their

organization, 2) the challenges they've faced in their efforts to engage stakeholders and 3) their organizations' indicators and measurements of stakeholder engagement program success and effectiveness. Participants were then divided into six small focus groups (4-6 people each) to discuss their individual responses and to fill out the same questionnaire as a group. Next, the research team facilitated a discussion among the entire group. The focus group discussion lasted for one hour. The individual and group discussions were not audio recorded and participants were not compensated.

Participants were assigned numbers on the written questionnaires to protect their identity. The questionnaire responses were coded using Atlas T.I. v6 qualitative analysis software. The questionnaires were analyzed using grounded theory, a qualitative research methodology. Using this approach, the written responses were reviewed for emergent themes, which were then extracted and coded in the Atlas T.I program. The codes were then organized into categories (Glaser and Strauss 1967). Tables depicting the code frequencies for the individual questionnaires were uploaded into a Microsoft Excel spreadsheet for analysis and comparison of the different codes and categories that emerged from the focus group discussion. The code frequencies were totaled to identify the most frequently mentioned strategies and challenges for engagement that were revealed in the questionnaires.

RESULTS: VOLUNTEER SURVEY

Volunteer Participant Demographics

Two-thirds of respondents were female (67%) and one-third were male (30%). Half of the respondents were aged 18-24 years old (50%), about one third were aged 25-44 years old (30%), and 20% were between 45-64 years old. One half of respondents were Caucasian (50%). African-American was the next most commonly reported race/ethnicity (17%), followed by other (10%), Asian (10%), Middle Eastern (7%) and Hispanic (3%).

The majority of respondents (86%) did not live in the neighborhoods immediately surrounding the two parks where the planting events were held. Four respondents (13.3%) resided in the neighborhood where the tree planting was held and one respondent lived in a nearby neighborhood. Thirteen respondents (59%) lived elsewhere in Brooklyn, 14% were residents of Queens, and 9% were residents of Manhattan. Two respondents lived outside of New York City, and one respondent lived outside of New York State. Most respondents (70%) had never visited the parks in which the tree-planting event occurred.

Volunteer Motivations

Volunteers reported a variety of motivations for participating in the tree-planting event: environmental benefits of trees (30%), community service (23%), benefits to youth (20%), enjoyment from planting trees (20%), the need for more trees (10%), and attending the event as part of a school class (10%). The category "other" (17%) included reported motivations, such as "church" and "inspiration". The majority of respondents (80%) volunteered as part of a group affiliated with a faith-based, school, community service, or non-profit organization. Many of the respondents (55%) had participated in a tree stewardship activity with an urban forestry organization in the past. The motivations of respondents with previous participation were compared to the motivations of respondents who had no previous participation in urban forestry. Participants with previous urban tree planting or stewardship experience (55%) were motivated to participate by environmental improvement (25%), community service (25%), helping the MTNYC effort (19%) and the benefits provided to children by trees (13%). Among volunteers without previous participation in a tree stewardship activity (45%) almost one-third (31%) responded that environmental improvement and the benefits provided by trees for children were motivations for attending the planting event that day. Previous non-participants were also motivated by community

service (15%) and the need for more trees (23%). Almost all of the respondents (93.3%), regardless of past urban forestry participation, planned to participate in another tree planting event in the future.

Volunteers' Perceptions of Environmental Impacts of Trees

Volunteers were asked about their perceptions about the impacts the trees they planted that day would have in the parks, as well as to think about the trees in the neighborhoods where they live and to report the impacts those trees have in their community. Volunteers perceived positive environmental impacts both of trees planted in the park and trees planted in the own neighborhoods. Perceived environmental benefits of trees in the parks included general environmental improvement[1] (57%), beautification and aesthetic benefits (30%), clean air (20%), shade (13%) and habitat for wildlife (13%). Perceived environmental benefits of trees in volunteers' neighborhoods included beautification and aesthetic benefits (50%), general environmental improvement (37%), shade (30%), clean air (27%) and habitat for wildlife (13%). In general, while many volunteers perceived trees to have similar impacts in the parks as in their neighborhoods, more volunteers perceived general environmental improvement to occur in the park compared to their neighborhoods. Furthermore, a higher number of volunteers perceived that trees provide aesthetic and beautification benefits in their neighborhoods than they do in parks.

Volunteers' Perceptions of Community Impacts of Trees

Responses related to perceived impacts of trees (in the park and their neighborhoods) that relate directly to human activities were categorized as community impacts. Responses about the perceived community impacts of trees differed between the volunteer planting site and volunteers' neighborhoods. Community impacts of trees within the park settings included involving the community in stewardship (23%), recreation (10%), helping MTNYC (10%), and providing education for kids (3%). Reported community impacts of trees within the volunteers' neighborhoods included recreation (10%), neighborhood character (3%) and increased property values (3%). In general, more respondents associated community impacts as occurring within parks, while few to none of the respondents perceived trees to have community impacts in their neighborhoods. Some respondents (20%) said that the question about the impacts of trees in their neighborhood was not applicable to them because they reported there were no trees near where they live.

Urban Forestry Practitioner Focus Group Participant Demographics

Participants in the focus group were 56% female and 44% male. Almost all participants were of non-Hispanic ethnicity (93%) and were Caucasian (96%). Participants were employed by urban forestry organizations in Nebraska, Colorado, Washington, Maryland, Arizona, Oregon, North Carolina, North Dakota, New Mexico, New York, Iowa, Virginia, Florida, Georgia, Tennessee, Washington, D.C. and Puerto Rico.

Nine participants (36%) worked for local non-profit organizations, six participants worked for municipal agencies (24%), three participants each worked for national non-profit organizations (12%) and federal agencies (12%). The others were employed by a university (4%), a state agency (4%) and a regional non-profit organization (4%). Professional positions among those who provided this information included president, assistant director, program coordinator, project manager and field coordinator.

[1] The code category "general environmental improvement" contained responses in which volunteers expressed an impact of trees on the environment, but did not name the specific ecological service provided by trees.

Stakeholder Engagement Strategies

Participants discussed various stakeholder engagement strategies during the focus group session (Figure 1). Representative written quotations for these strategies are presented (Textbox 1). The most frequently mentioned strategy was "providing education about the benefits of trees." Practitioners reported that educating about the benefits of trees and how these benefits will impact people and communities was an effective strategy. Maintaining "long-term communication" with volunteers and past program participants and working in "interagency collaboration" with partner organizations were tied as the second most frequently mentioned engagement strategies. Practitioners discussed their efforts to keep in touch with volunteers and program participants through various forms of communication. Long-term communication can also lead to partnerships, as described by Participant #22 (Textbox 1). Practitioners discussed the importance of building partnerships among community groups and other non-profit organizations with similar environmental missions and activities as their own. Participants also identified funding as a factor that influences the development of partnerships.

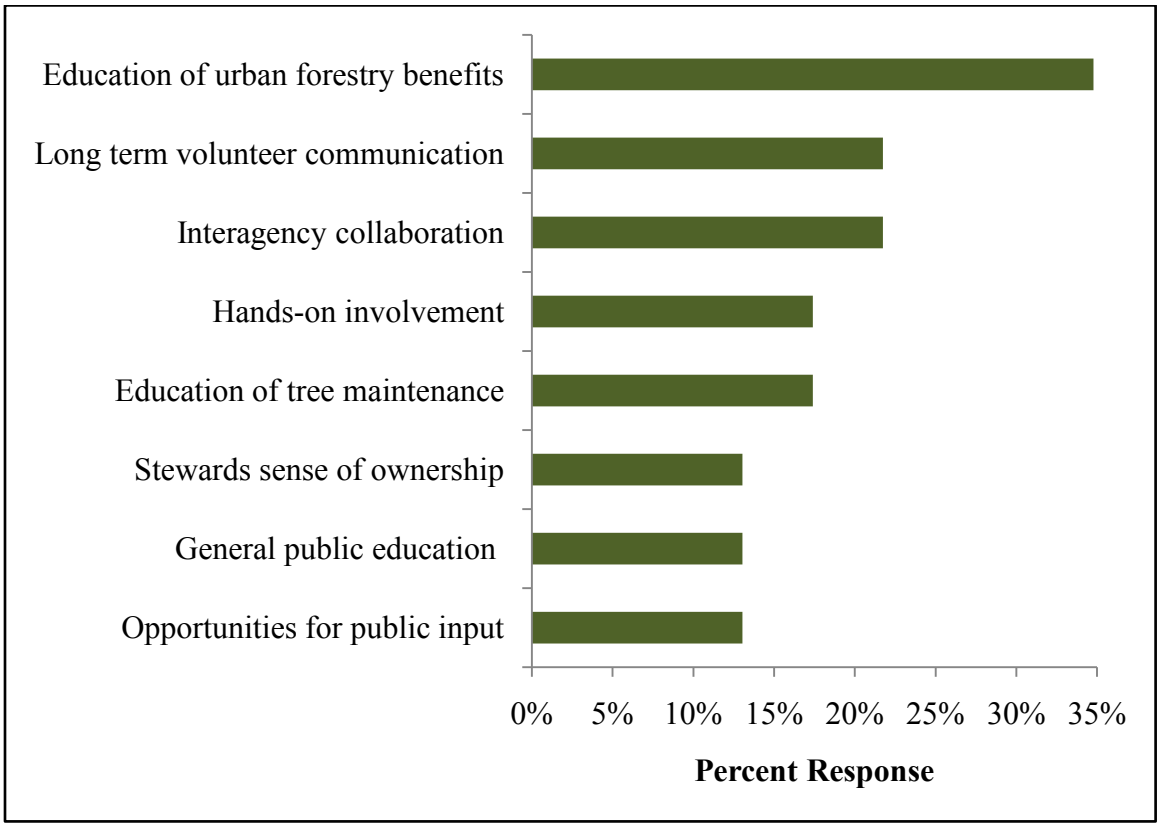

Figure 1. Successful strategies for stakeholder engagement in urban forestry as identified by urban forestry practitioners.

Participants reported that the "hands-on involvement" of volunteers and homeowners in tree planting efforts and street-tree inventories was a successful engagement strategy. Furthermore, participants discussed how to provide stakeholders with the resources they need to become involved in "hand-on" projects. "Education of tree maintenance" was also described as an effective engagement strategy. This type of education included basic maintenances skills for the different life stages of trees, as well as other forms of stewardship such as tree bed gardening (Textbox 1).

Education about Urban Forestry Benefits

- "Education of the many benefits urban forestry offers and how it impacts them on a day-to-day level." (1)
- "…information on benefits and services the people in community can obtain from urban trees and urban forests…" (7)

Long Term Communication

- "We try to maintain a positive, warm relationship post tree-planting with continued education, tree maintenance, contact through phone calls, e-mails, newsletters." (19)
- "Must have follow-up mechanisms to stay in a relationship with those people who were involved. For example, follow up postcards to tree recipients with tree maintenance advice, or continued contact via neighborhood association or block captains." (22)

Partnerships

- "Developing partnerships with organizations and interested individuals working through existing organizations like neighborhood groups…" (12)
- "Through community conversations look for partnerships—funding, time, and labor resources." (22)

Education of tree maintenance concepts and skills

- "Convenient education about stewardship (pruning, tree bed gardening, etc)." (15)
- "Education of proper tree care principles from planting, to establishment, to long-term care." (1)

Textbox 1. Example quotations about stakeholder engagement strategies. Numerical identification for participants is in parentheses.

Challenges for Stakeholder Engagement

The most frequently mentioned challenge for stakeholder engagement in urban forestry among was a "lack of urban forestry knowledge" among stakeholders (Figure 2). Participant #2 alluded to a general lack of awareness about urban trees (Textbox 2) whereas others specified a lack of knowledge in certain urban forestry concepts. For example, Participant #23 viewed the public's lack of knowledge of urban trees as "an essential component of our infrastructure" as a challenge. Participant #20 believes that a lack of knowledge of about the science behind urban forestry is problematic (Table 4).

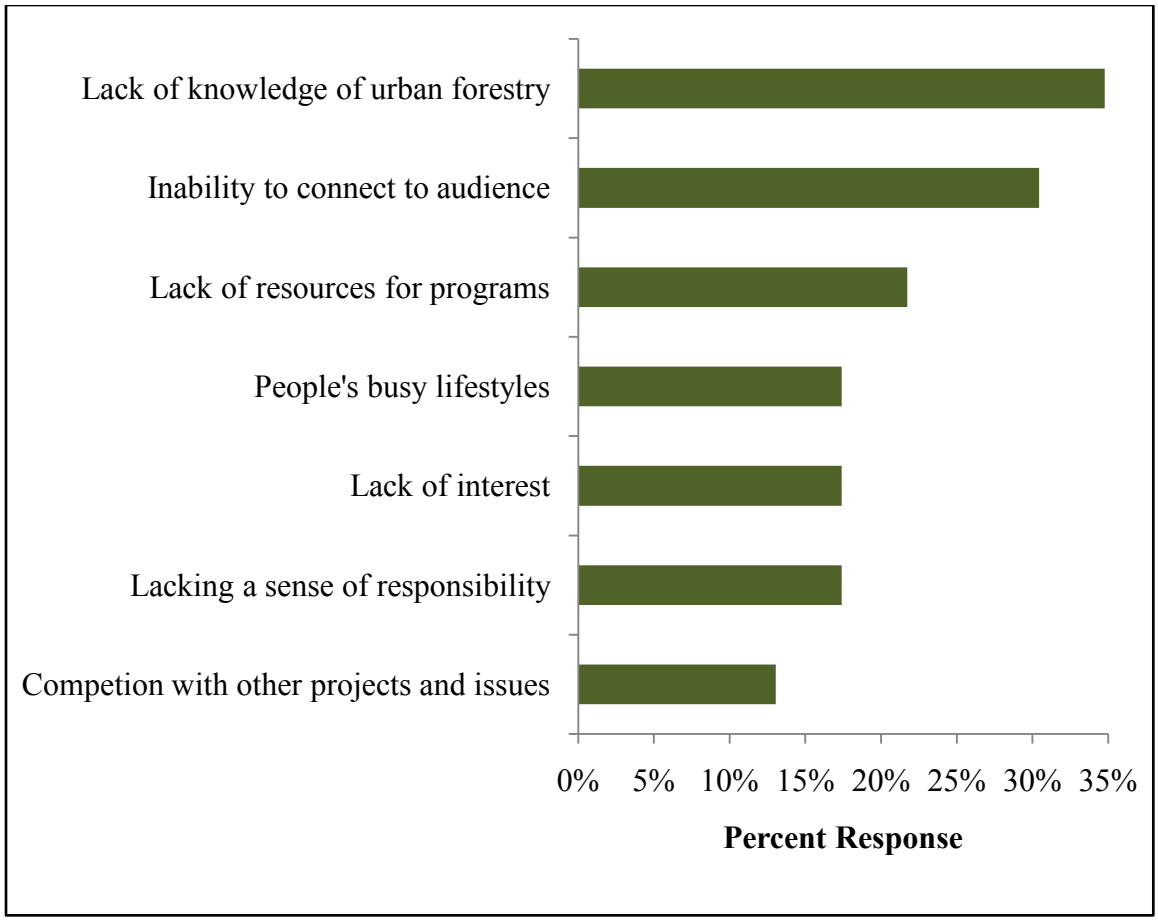

Figure 2. Challenges for stakeholder engagement in urban forestry as identified by urban forestry practitioners.

The second most frequently mentioned challenge for engagement was the "inability to connect to audiences." This challenge was often discussed in the context of communication, as described by Participant #8 (Textbox 2). Practitioners recognized the importance of tailoring outreach efforts to specific stakeholder audiences, but they expressed that it was difficult to initially reach out to and connect with stakeholders. Participant #6 (Textbox 2) described feeling discouraged by the challenges associated with reaching out to an array of socioeconomic and cultural audiences, and stated that it was simply easier to work in communities where support for urban forestry already existed.

Another frequently mentioned challenge was "the lack of resources for programs," such as funding and staff time. For some, the need for additional funds confounded other barriers for engagement, such as the "inability to connect to audiences." Another frequently mentioned challenge for engagement included "competition with other issues and programs in the community" and "people's busy lifestyles." Participants perceived that their urban forestry programs are competing with other issues and programs in the community (Textbox 2). Some participants believe it is difficult for people to fit participation in urban forestry into their busy lifestyles.

Lack of Knowledge about Urban Forestry

- "Getting people to think about trees at all." (2)
- "[The] lack of understanding of the public as to what 'urban forestry' is" and the public "thinking urban forestry only means planting trees." (8)
- "Many people do not understand ecosystem science to appreciate the benefits of individual trees and urban forests." (20)

Inability to Connect with Audiences

- "Deficiency in educating/communicating what urban forestry is and what types of projects can be done." (8)
- "…I am finding that at times I just have to do outreach/recruitment in places I know where support will be there instead of spending time in these communities that are tougher for us to build meaningful connections in." (6)

Lack of Resources for Programs

- "[It is] difficult to get people deeply engaged and trained, due to their time limits and our staff/resource limits." (11)

People's Busy Lifestyles

- "Pulling [people] away from busy lifestyles to do a community project on a Saturday when the weather is either too bad or too nice." (1)

Competition with Other Issues and Projects in the Community

- "[It is] hard to compete with lots of other projects/promos for their attention." (11)
- "Making your message standout among all the other messages." (22)

Textbox 2. Participant Quotations about Challenges. Numerical identification for participants is in parentheses.

DISCUSSION

Motivations for Planting Trees

While environmental benefits and community service were the primary motivations for planting trees, urban forestry volunteers reported a variety of motivations for participating in the MTNYC tree planting event. Our findings are consistent with the Volunteer Function Inventory's (VFI) main tenet that people will have different motivations to participate in the same act of volunteerism (Clary et al. 1998). According to the "understanding" function of the VFI, volunteers may be motivated to participate in activities that provide opportunities for them to learn new skills or to exercise skills that they do not regularly use (Clary et al. 1998). This function may explain why some volunteers reported a "love for planting trees" as their motivation for attending the event. In light of the "understanding" function, the tasks associated with planting a tree may have provided volunteers with an opportunity to learn new skills or to use skills that they don't use everyday, such as digging holes in the ground for the trees or applying mulch to the planting bed.

Participation in the tree planting event may have also served the "values, enhancement and protective" functions described in the VFI. According to these functions, volunteerism may provide an individual with the opportunity to act upon their personal values, to experience personal growth and development and to reduce or cope with negative feelings. Specifically, the act of planting a tree

can fulfill all of these functions, as tree planting has been described as a symbolic ritual, ceremony or celebration (Lipkis and Lipkis 1990; Jones and Cloke 2002). An emerging body of research has demonstrated the symbolism of trees as memorials in post-disaster conflicts. For example, the US Forest Service's Living Memorials Project supported and examined the creation of hundreds of tree plantings and gardens in communities around the United States to memorialize the lives that were lost during the 9/11 terrorist attacks in New York City (Svendsen and Campbell 2010; Tidball et al. 2010). Likewise, community tree plantings have served as a symbol of hope and rebirth for residents in New Orleans following Hurricane Katrina (Tidball 2007; Tidball et al. 2010). Many volunteers in the present study attended the event as part of a group, which suggests that the volunteer planting event might serve the "social" function of the VFI for some. This finding supports previous findings that urban forestry volunteers experience satisfaction from working with others (Sommer et al. 1994; Still and Gerhold 1997).

Our results demonstrate the interpersonal and intrapersonal facets of volunteer motivations. Urban forestry volunteers may have personal desires (e.g. their love for planting trees) as well as social (e.g. community beautification) or environmental goals (e.g. clean air) they seek to fulfill through participating in a tree planting event. The goals people seek to accomplish through volunteering may also change over time depending on their continued volunteer experiences (Snyder and Omoto 2008). This was evidenced in our study, for we found that volunteers with more experience in urban forestry had different motivations than did volunteers without prior experience. For example, participants with past experiences in urban forestry were likely more aware or informed about MTNYC because only these volunteers specified the name of the initiative. Since knowledge of urban forestry programs is one predictor of stakeholder participation in these programs (Straka et al. 2005; Zhang et al. 2007), it is not surprising that volunteers with past experience in urban forestry reported that "helping MTNYC" was a motivation for attending the event. Thus, our findings suggest that prior knowledge and experience also shapes motivations for volunteerism in urban forestry.

Volunteer Perceptions of Impacts of Trees

Our findings suggest that the perceived benefits of trees are dependent upon the context in which trees are planted. While volunteers perceived trees to have many of the same impacts in both parks and their own neighborhoods, these impacts are not perceived to occur to the same degree in both locations (parks and neighborhoods). However, the impacts of trees, specifically the community-level outcomes of trees (Table 1), can and do occur in both settings. For example, "helping MTNYC," and "providing educational opportunities for kids," were all attributed to the park settings, but these impacts can also occur in residential neighborhoods.

Previous research has found that many people have a limited knowledge of the benefits of urban trees (e.g. Stieglar 1990; Hull 1992; Lohr et al. 2004). However, the extent of the public's knowledge has been mixed depending upon the location in which the research took place. For example, residents in a suburb of Chicago reported that trees provide aesthetic and economic benefits and that these functions of trees were more important than the environmental benefits of trees (Shroeder and Ruffolo 1996). However, a survey conducted in the most populous metropolitan areas of the United States found that the provision of shade and reduced air temperatures were the highest ranked benefits (Lohr et al. 2004). The results of our study suggest that respondents were more aware of the environmental benefits of trees—or at least it was a motivating factor for their involvement in tree planting. This finding is congruent with another study conducted in the South Bronx, New York City that found that many residents were aware of trees' ability to soak up storm water and to minimize flooding, and to clean the air (Allred et al. 2010). Perhaps an individual's perceptions of the impacts of trees are related to the presence of trees in their community. Gorman et

al. (2004) found that people's values associated with street trees were dependent upon the presence of a street tree outside of their residence. However, some of the participants in our study reported that they resided in neighborhoods that did not have many trees, and thus may not have personally experienced the benefits trees can provide to urban neighborhoods.

An impact of trees that was perceived to occur in parks, but not in residential neighborhoods, was "involving the community in stewardship." Since street trees are not planted as densely as they are in parks, it is plausible that residents perceive that street trees do not require the same kind of stewardship care or community involvement as stands of trees in parks. Furthermore, participants may have attributed stewardship to the park setting because they associate this behavior with large groups of trees and forested areas and not with the smaller plantings of street trees in their neighborhood.

Strategies for Stakeholder Engagement

Urban forestry practitioners reported a variety of strategies for engaging stakeholders. Some strategies are related to the messaging or content of their programs, such as "education of tree benefits," "education of tree maintenance," while others are related to the nature of communication, such as "long term communication with volunteers," and "solicit public input on projects." Other strategies reflect an effort to directly involve stakeholders in urban forestry and to empower them to be active stewards, as illustrated by "hands-on involvement for volunteers" and "fostering ownership of steward projects."

Urban forestry practitioners also identified numerous challenges for engagement. A "lack of urban forestry knowledge" was identified as the most significant challenge for engagement. The second major challenge, "inability to connect to audiences," presents many hurdles for reaching and engaging various stakeholder groups. These challenges are further confounded by "lack of resources for programs," because minimal staff and funding resources make it difficult to implement urban forestry education programs and connect with various audiences. These challenges are not new to organizations working on urban environment programs. A survey of urban environmental stewardship organizations revealed that lack of funds, staff and time were significant barriers to accomplishing organizational missions (Svendsen and Campbell 2008). Another challenge that was mentioned reflects practitioners' perception that people have "busy lifestyles." This challenge may be related to the "competition with other issues and projects" that urban forestry practitioners perceive may be preventing stakeholders from becoming involved in urban forestry programs.

The Alignment of Motivations and Strategies

The results of our study can be interpreted as a snapshot of the antecedents stage of the Volunteer Process Model at both the individual and organizational levels. If the engagement strategies reported in the focus group are indicative of the ways in which urban forestry practitioners attempt to recruit volunteers, our findings suggest that these strategies hold potential for matching the motivations of volunteers. For example, many practitioners reported that they provide education about the benefits of urban trees. This strategy, as well as "education on tree maintenance," would likely be successful in recruiting potential volunteers who are motivated to participate in urban forestry activities because of the environmental benefits of trees. Likewise, the strategy of providing opportunities for "hands-on involvement" may serve the understanding function for volunteers who seek to participate in an urban forestry activity to learn new skills or to exercise skills they don't often get to use.

Many of the other strategies reported by practitioners were not specifically related to educational content, but rather the interaction with program participants, such as maintaining long-term communication with volunteers. This strategy may be fruitful for enhancing the volunteer experience. According to the second stage of the Volunteer Process Model, ensuring that volunteers have a positive experience in the activity can help to insure that engaging in the service activity remains functionally relevant for volunteers. Another strategy that holds potential for matching the motivations of urban forestry volunteers is "fostering ownership of steward projects" and "soliciting public input on projects." These two strategies may serve the values and enhancement functions of the VFI by providing opportunities for volunteers to act upon their personal values through taking ownership of and providing feedback on the organization's urban forestry activities.

Urban forestry organizations face many challenges in effectively engaging stakeholders throughout the volunteer process. Perhaps the most significant challenge for initial recruitment in the antecedents stage of the volunteerism process was identified in our study as "inability to connect to audiences." Volunteerism researchers have suggested that matching the messages used in organization's recruitment campaigns to the motivations of volunteers is an important factor in the initial engagement of stakeholders (e.g. Clary et al. 1998; Snyder and Omoto 2008).

Understanding volunteer motivations can help organizations tailor their messages to potential volunteer audiences, as well as attending to these motivations once volunteers are involved in the organization's activities (Snyder and Omoto 2008). For this reason, additional examination into stakeholder and volunteer motivations (Still and Gerhold 1997) should a priority for future research in order to address this challenge that urban forestry practitioners are still facing.

CONCLUSION

Stakeholder engagement in urban forestry is important for the sustainability and health of urban trees and the provision of beneficial services to individuals, communities and natural ecosystems in urban areas. Urban forestry practitioners, from municipalities to non-profit organizations, can organize opportunities for stakeholders to become involved, such as volunteer tree planting events. These events can attract volunteers who may have different motivations for participating, an occurrence that is consistent with psychological research on volunteerism. Volunteers are just one stakeholder group, but existing research on volunteerism, such as the VFI and Volunteer Process Model has shed light on the individual and organizational processes that can activate and sustain engagement in community based service.

At the individual level, people's motivations to become involved in urban forestry, such as through tree plantings, are varied. These motivations may be for the sake of helping others, such as providing benefits to youth, or for the sake of restoring the natural environment. However, some people may have more self-focused reasons for volunteering in a tree planting event, such as to fulfill a personal desire of a love for planting trees. Thus, urban forestry practitioners should seek to utilize recruitment strategies and to design urban forestry experiences that can fulfill the many facets of personal motivations to volunteer in stewardship of urban trees.

Limitations and Future Research

This research was a preliminary examination of the motivations and strategies for stakeholder engagement in urban forestry, but we expect that our study has laid the groundwork for additional empirical explorations into the motivations of stakeholders to become engaged in urban forestry. Future research should examine urban forestry volunteers and the organizations for which they volunteer to determine the degree of match between motivations and strategies. Furthermore,

our results suggested that volunteer motivations varied depending on past experience in urban forestry, so future research on motivations should be conducted with volunteers who have different levels of prior participation in urban forestry activities. Lastly, our research was limited by a small sample size. Our results provide important insights regarding individual and organizational factors that can influence stakeholder participation in the stewardship of urban trees. Future studies should include a larger sample of participants to determine if the relationships found in this study hold true for a broader, larger, or different geographically focused sample. Moreover, selection bias may have been operating in our study because the level of knowledge and awareness about the environmental benefits of trees among participants may not be representative of typical volunteer groups.

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APPENDIX 1

MillionTreesNYC Fall 2009 Volunteer Tree Planting Event
Face-to Face (On-Site) Survey Guide

Hi, I am with Cornell University Cooperative Extension in NYC, and we are surveying people to learn what they think about trees in New York City. This information will help us plan future education programs. Participation is voluntary, and your answers are confidential and anonymous. This survey should take about 5 minutes. Are you interested in taking part? Are you at least 18 years or older?

1. How did you find out about today's event?
2. What motivated you to attend today's tree planting event?
3. Are you here with a group?
    a. If yes, what kind of group?
4. Do you live in this neighborhood?
    a. If no, where do you live?
5. Have you ever visited this park?
    a. If yes, how often do you visit?
6. Have you ever been involved with tree planting or tree care in the past?
7. Do you think today's planting will have an impact in this park?
    a. If yes, what impacts will the trees planted today have in this park?
8. Do you think trees have an impact in your neighborhood?
    a. If yes, what impacts do trees have in your neighborhood?
9. Do you plan on being part of any tree planting or care activities in the future?

APPENDIX 2

Thematic Coding Categories and Results

1. How did you find out about today's event? (n=30)

- Work colleague (3%)
- Newspaper (3%)
- Family (7%)
- Friend (13%)
- MTNYC website (17%)
- Other (23%)
- Community organization (50%)

2. What motivated you to attend today's tree planting event? (n=30)

- Part of a class (10%)
- The need for more trees (10%)
- Other (17%)
- Enjoys planting trees (20%)
- Community service (23%)
- Environmental benefits of trees (30%)

3. Are you here with a group? (n=30)

- Yes (80%)
- No (20%)

3a. If yes, what kind of group? (n=24)

- Family (3%)
- Friends (3%)
- Faith-based (3%)
- Company (3%)
- Other type of group (10%)
- School (21%)
- Organization (21%)

4. Do you live in this neighborhood? (n=30)

- Yes (13%)
- No (87%)

4a. If no, where do you live? (n=26)

- Nearby neighborhood (5%)
- Manhattan (9.%)
- Queens (14%)
- Brooklyn (59%)
- Outside New York City (9%)
- Out of state (5%)

5. Have you ever visited this park? (n=30)

- Yes (30%)
- No (70%)

5b. If yes, how often do you visit? (n=9)

- Daily (3%)
- Weekly (7%)
- Monthly (3%)
- A few times per year (3%)
- Other frequency (10%)

6. Have you ever been involved with tree planting or tree care in the past? (n=29)

- Yes (55%)
- No (44%)

7. Do you think today's planting will have an impact in this park? (n=30)

- Yes (93.3%)
- No (6.7%)

7a. If yes, what impacts will the trees planted today have in this park? (n=28)

- Provide energy (3%)
- Prevent invasive species (3%)
- Provide space (3%)
- Increase biodiversity (7%)
- Help MTNYC (7%)
- Provide shade, cooling benefits (13%)
- Provide habitat, food for animals (13%)
- Clean air (20%)
- Beautification (30%)
- Involve the community in stewardship (23%)
- General environmental improvement (57%)

8. Do you think trees have an impact in your neighborhood? (n=30)

- Yes (80%)
- No (20%)

8a. If yes, what impacts do trees have in your neighborhood? (n=24)

- Neighborhood character (3%)
- Increase property values (3%)
- Storm water, erosion reduction (7%)
- Attract nuisance animals (7%)
- Recreation (10%)
- Provide habitat, food for animals (13%)
- Involving the community in stewardship (23%)
- Clean air (27%)
- Provide shade, cooling benefits (30%)
- General environmental improvement (37%)
- Beautification and aesthetic benefits (50%)

9. Do you plan on being part of any tree planting or care activities in the future? (n=30)

- Yes (93%)
- Maybe (7%)
- No (0%)