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Research paper

Residents' beliefs about responsibility for the stewardship of park trees and street trees in New York City

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HIGHLIGHTS

- We examine residents' beliefs toward responsibility for tree stewardship.
- The majority of respondents viewed government as responsible for tree stewardship.
- Few respondents believed that responsibility for tree stewardship should be shared.
- Many respondents did not view themselves as responsible for tree stewardship.

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ABSTRACT

Cities are currently planting millions of trees for the numerous environmental, health and economic benefits that urban forests provide, such as improved air quality and community beautification. The post-planting maintenance of newly planted trees is critical for the survival of these trees and for the success of urban tree planting efforts. Many of these initiatives are implemented as public–private partnerships, in which local government agencies partner with non-profit organizations and community groups to plant and maintain the trees. These partnerships also encourage residents to engage in urban forest stewardship, defined as providing basic care and maintenance to trees such as watering. However, residents may not recognize themselves as responsible for stewarding trees planted on public property, such as along city streets and in parks. This study explores residents' beliefs toward which groups should be responsible for tree stewardship, the factors and affect these beliefs and how these beliefs differ for trees planted in different types of public property (streets and parks). We conducted a survey of residents in two neighborhoods in New York City: Jamaica, Queens ($n = 399$) (street tree study site) and in Canarsie, Brooklyn ($n = 410$)(park study site). Results reveal that the majority of respondents believed the government should be responsible for tree stewardship and that few respondents believed that residents should be responsible for tree care, or that multiple groups should share stewardship responsibility. Implications for urban forest planning and environmental governance are discussed, such as opportunities for direct citizen participation in urban tree planting processes.

1. Introduction

Many cities in the United States are planting millions of trees for the numerous environmental and health benefits trees provide in urban areas in order to enhance the livability and sustainability of cities (Young, 2011). Urban forests can improve air quality, reduce air temperatures and mitigate storm water pollution. The presence of trees in urban residential areas can also reduce psychological distress and feelings of aggression among residents (Kuo, 2001), as well as encourage social interactions and foster a greater sense of community among neighbors (Kuo, Sullivan, Coley, & Brunson, 1998). Many trees planting initiatives are implemented in cities as public–private partnerships between local government and non-profit organizations (Pincetl, 2010a; Young, 2011), but there are also many other types of civil society actors (e.g. non-profit organizations, community groups) that are actively involved in urban forest management activities and urban tree stewardship on public land (Svendsen & Campbell, 2008). We define the stewardship of urban trees (tree stewardship) as the post-planting maintenance of trees, such as watering trees, mulching and removing litter from the planting bed and pruning branches. Tree stewardship is critical for achieving high tree survival rates—particularly immediately following planting—so that the benefits provided by the trees are sustained (Lu et al., 2010). Since many cities have faced budget cuts

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for environmental management, municipal agencies are increasingly reliant on the civil society sector (e.g. nonprofits, volunteers, residents) and other private property owners for managing trees planted on public property, such as street trees and park trees (Pincetl, 2010a, 2010b; Rae, Simon and Braden, 2010; Svendsen & Campbell, 2008;Young, 2011).

The involvement of multiple stakeholders outside of government in carrying out tree stewardship activities is especially important in cities such as New York City, Houston, TX and Los Angeles, CA where trees have been planted by contractors who are only required to maintain the trees for the first few years after they are planted. Urban forestry practitioners in these cities have expressed concerns about tree maintenance after these contracts expire, given that public agencies and civil society groups often struggle with budget cuts and inconsistent volunteer turnout (Young & McPherson, 2013). While urban forest managers expect that residents who live, work and recreate in neighborhoods where trees are planted will take on some responsibility for post-planting tree care (Pincetl, 2010a), it is not clear whether residents believe that they are responsible for maintaining trees planted by public–private tree planting initiatives. A belief is defined as what people hold true about the world in their mind (Smoak, 2007). In this article, we investigate residents' beliefs about which entities should be responsible for tree stewardship. Residents' beliefs that they have or share responsibility for tree stewardship may be a precursor to residents actually providing basic care to newly planted trees. An understanding of these beliefs can inform policies and planning related to tree stewardship and the design of governance institutions for urban forest management.

1.1. Actors in urban forest stewardship

Environmental governance arrangements dictate the pattern of actors that guide and influence environmental stewardship actions and outcomes (Lemos & Agrawal, 2006; Swyngedouw, 2005). The pattern of actors involved in managing urban public lands is increasingly comprised of an increasing number of civil society groups like non-profit organizations, community groups and volunteers working in partnership with or in the place of government agencies (see for example Svendsen & Campbell, 2008 and Wolf, Blahna, Brinkley, & Romolini, 2013). All of these groups can make unique contributions toward urban forest management. In many contexts, such as public–private partnerships for tree-planting initiatives, government or quasi-government agencies provide coordination and oversight for planting activities. For example, urban forest inventories conducted by government agencies and non-profit organizations can help to identify locations for future tree plantings. These inventories can inform future tree plantings and can help to ensure that trees are equitably distributed across cities, as recent studies conducted across cities in the U.S. have found that low-income neighborhoods tend to have fewer trees than do affluent neighborhoods (Dai, 2011). Non-profit organizations and other civil society groups often conduct education and outreach with various stakeholders to raise awareness about the importance of urban trees, to train residents in tree stewardship skills and to also provide volunteer opportunities (Elmendorf, 2008). Civil society organizations can also facilitate participatory urban forest planning to ensure that municipal tree planting initiatives reflect the communities' needs and desires related to urban forests (Austin, 2002).

Individual residents are in a unique position to maintain young trees as they live, work and recreate in close proximity to the street and parks trees planted as part of tree planting initiatives. While municipal agencies and civil society organizations may have resources for maintaining trees (like watering trucks or volunteers), they may not be able to water every newly planted tree in a timely manner and thus, often rely on residents to help maintain trees. Actions by residents to provide basic care to trees may increase tree survival rates. Boyce (2011) found that street trees that were monitored by local residents had a significantly higher survival rate than trees that were not monitored. Lu et al. (2010) found that trees that exhibited signs of active stewardship (planted flowers or mulch in the tree pit, evidence of weeding, stewardship related signage) also had a significantly higher survival rate than trees without evidence of stewardship. In addition to the environmental benefits that may result from residents' stewardship actions, community involvement in tree planting and stewardship can also produce cumulative individual and community level benefits that could enhance tree survival in the future, such as the empowerment of residents to join together to take actions to improve and steward green spaces in their neighborhood (see Westphal, 2003).

1.2. Challenges for residents participation in tree stewardship

Although many different actors in the public and civil society sector have roles to play in urban forest management, coordinating these actors to ensure that newly planted trees are properly maintained is no easy task. Engaging residents in urban forest stewardship on a wide scale remains a significant challenge for urban tree planting campaigns (Young & McPherson, 2013). One challenge is that residents may not recognize which entities are legally responsible for tree stewardship (Rae et al., 2010) perhaps due in part to the multiple types of actors that may be involved in tree planting and urban forest management on public land (Svendsen & Campbell, 2008). Another challenge for community engagement in urban forest stewardship stems from the tree planting process during which residents may not have been directly consulted or notified before trees were planted in the public space adjacent to their private property (Pincetl, 2010a; Rae et al., 2010). The lack of public involvement in the tree planting process may also lead residents to view the entities who planted the trees to be responsible for stewardship, and thus, residents may not view themselves as sharing responsibility for maintaining newly planted trees.

Furthermore, Pincetl (2010a) argues that large-scale tree planting initiatives can sometimes patronize residents by assuming that all residents will be supportive of tree planting activities in their neighborhoods. However, residents may be concerned about tree planting initiatives due to fear that falling trees and branches will cause property damages, that trees will cause allergies and attract diseases and pests and potentially harbor criminal activity (see for example Braverman, 2008 and Pincetl, 2010b). These beliefs may prevent some residents from engaging in tree stewardship. If residents are not supportive of new tree planting activities, and if they do not recognize themselves as being responsible for providing basic care to trees, then residents may not engage in tree stewardship. As numerous cities are actively expanding their urban forests, the degree to which residents' perceive themselves as responsible for tree stewardship remains unclear.

1.3. Measuring beliefs about responsibility for tree stewardship

We look to previous research in environmental policy for guidance on how to measure residents' beliefs about which entities should be responsible for tree stewardship. Many studies have examined public support for the level of government (local, state, federal) that should have authority in various public policy realms (e.g. health care) and have found that support for each level of government varies across policy issues (see Konisky, 2011 for a review). One weakness of many of these surveys is that they did not allow respondents to choose a mixed arrangement between federal, state or local government (Konisky, 2011). One study that allowed for the measurement of intergovernmental responsibility for eleven