



Photo 2



Photo 3



Photo 4



Photo 5

Emotional and Physical Effects of Damage: Catalysts for Civic Ecology Practices

Place attachment and forms of topophilia were evident in the psychological and emotional responses to the parks, trees, and community garden damage from Hurricane Sandy. Descriptions of the damage included feelings of sadness and being overwhelmed:

But the beach and the woods nearby suffered from serious damage and that was, that was sad.⁹⁷

⁹⁷ Maiorani, Interview.

I walked [Swindler Cove Park] and I was just like ‘oh my god.’ And you know you see that and you just – this is insane, how are we going to recuperate from this?⁹⁸

[The damage] was devastating!...I mean, that’s my park! It’s a neighborhood park so we tend to think about it as our personal space when of course it isn’t, it’s something we share with everyone...But when you see these huge trees that are just uprooted at the base, or just snapped in half, and its just – I mean you can’t walk through the park... You see these big old trees, you know, finished. That’s devastating.⁹⁹

People can be very emotionally attached to their trees, and to suddenly lose something like that was very tough for some people.¹⁰⁰

I was truly saddened to see what happened to the beaches and boardwalk.¹⁰¹

It was devastating to see the piles of garbage and debris on the beaches.¹⁰²

Though upsetting, these descriptions show an individual and communal stage that is ready for resilience. Reviewing the DROP model and the work by Cutter et al., resilience only occurs when a community’s absorptive capacity is exceeded. In this case, if the absorptive capacity was not exceeded, we would have seen less emotional descriptions of damage in the wake of Hurricane Sandy. The fact that this survey and interviews were conducted two months after the storm also shows that adaptive capacity was exceeded. Thus, these emotions of despair and sadness are necessary catalysts for civic ecology practice and resilience action.

Place attachment and an exceeded absorptive capacity was physically realized in the ensuing lack of access to green spaces in the days, weeks, and months following the storm. Strong attachment was evident in the frustration with this lack of access to the spaces that are used on a consistent basis, often places visited daily for exercise or routines. Activities that take place in community green spaces serve as a medium for which the spaces are experienced, and create the attachment. Thus, when damage prevents these activities from taking place, residents realize their positive dependence on the spaces that is often shared within the community. A few examples include Marise Hausner’s weekly farmer’s market in Don Hammersvold Park, and a parent’s inability to take their children to the playground.¹⁰³ Another survey respondent wrote, “It was very hard to see our new Brooklyn bridge park have so much damage that we could not use it after sundown and that has affected me very much.”¹⁰⁴ On Staten Island, many of the parks were closed until Memorial Day, forcing residents to drive to the parks that were open in other areas of the island, often “packed with people.”¹⁰⁵ Residents, therefore, faced physical restrictions that served as reminders of the damage and their attachments to the green spaces that surround them. For some, these reminders of previous attachment ignited a desire to re-appreciate the spaces: “Let me put it this way. You didn’t realize how valuable [the parks] were until they are not available to you anymore. So a lot of people don’t have a place to go.”¹⁰⁶ The damage then creates a space to revisit

⁹⁸ Anonymous 1, Interview.

⁹⁹ Hausner, Interview.

¹⁰⁰ Bishop, Interview.

¹⁰¹ Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

¹⁰² Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

¹⁰³ Hausner, Interview.

¹⁰⁴ Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

¹⁰⁵ Maiorani, Interview.

¹⁰⁶ Maiorani, Interview.

an inherent value for green space or develop a new value; what begins as a moment of frustration turns into the beginning stage of an urgent biophilia as community members process their values for green spaces.

For others, psychological trauma and devastation from the damage did not stem from an initial topophilia or attachment to place, but rather an attachment to nature in itself. While residents may have experienced an urgent biophilia, or a new sense of connection to nature, there was evidence supporting the idea that Hurricane Sandy illuminated past connections to nature that were realized, or re-realized. Rather than the formation of new biophilic connections, recognition of previous biophilic connections occurred. Some realizations were of the sheer magnitude of nature: “you just realize the force of nature and just how powerful it is. We tend to forget all that stuff;” “I was amazed to see the trees on Pelham Parkway destroyed. It is a humbling experience to see the power of nature.” Other realizations were made from shock at the visual changes in the landscape: “Hurricane Sandy heightened my sensitivity to the fact that raw, natural, green spaces are often taken for granted. Trees that had stood a lifetime toppled like cards and landscapes were changed in an instant;” “the amount of damage is staggering. Complete landscapes have changed, which change the character of the land we love;” “While I have gone back to walking in the park on a regular basis, I am still startled to notice trees that are missing. Our parks are still very beautiful, but they are changed. Of course, new trees and plantings will replace those that were damaged, but it will take a long time for them to become integrated into the existing landscape.”¹⁰⁷ There was also shock at how landscapes *didn't* change:

I was also surprised at the resilience of the plants in the community gardens. In one garden, the large plastic awning/tent structure was completely knocked down, but the two-foot cabbage stalks were still standing. It was a great example of how nature deals with nature.¹⁰⁸

Forced to face the damage in their parks, community gardens, and trees, residents were left with realizations about their existing relationships or potential future relationships with the local ecosystems that surround them. This “heightened sensitivity” as one resident described it, provides a unique space for resident awareness to social-ecological systems, a necessary step for the resilience that follows.

In accordance with Tidball et Al.’s work to redefine human dependence on nature as a positive relationship, the test for resilience comes from the ability for this place attachment and urgent biophilia to stimulate civic ecology practices. For non-profit organizations like NYRP, GreenThumb, and Trees NY, which have inherent structure and social networks, as well as responsibilities to the green spaces that they care for, civic ecology practices manifested in the forms of organized clean ups with either volunteers, crews, or both. One organizational leader described the dedication of her team, “These guys are very dedicated at getting things back to where they need to be... You know so, we try to make sure that its taken care of.” NYRP, GreenThumb, and Trees NY organized and participated in clean ups for community gardens, parks, and trees.¹⁰⁹ For community members, topophilia and attachment to place corresponded in participation in clean ups and dedication to the spaces that were damaged. A member of the NYC Parks Department participated in street clean up, describing it as a choice to “go out and work long hours.”¹¹⁰ A 75-year-old active community gardener wished that he “could do as much as [he]

¹⁰⁷ Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

¹⁰⁸ Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

¹⁰⁹ Anonymous 1, Interview., Spencer, Interview., Bishop, Interview.

¹¹⁰ Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

used to do outdoors in our public open spaces.”¹¹¹ A GreenThumb employee explained that for many community gardeners “look at these spaces as their second homes, even their first homes in a way depending on where they’re coming from.”¹¹² Thus, the initial psychological distress caused by damage translated into a desire for action.

When not translating into direct action, positive dependency translated into attitudes of increased civic engagement and adaptation. One survey respondent exhibited an attitude of resilience that focuses on the future of NYC green spaces:

A great aspect of any outcome to a severe storm is that it illuminates the areas of our community that need greater assistance and attention. There's still a lot of work to do towards taking care of sandy-related damages; nonetheless, there's a lot of community members continuing to work on handling these matters. Their positive attitudes reflect the strength of community engagement and one of the key reasons NYC remains on a productive path towards Sandy-related recovery.¹¹³

Recognizing how positive attitudes within the community contributes to resilience in its value of the sense of community and community organizations and residents as important actors within the recovery process. Positive attitudes noticed within the community are also signs of community wellness; despite existing opportunities for improvisation and social learning, the initial recognition of shared positive attitude shows both the desire and determination of this community member to recover, an expression of wellness.

ORGANIZATION AND NETWORK STRUCTURES

Both formal and informal community organizations wire the social networks inherent to any community. Recalling the work of Russell Dynes, it is these community organizations that are often times the “problem solving arms of the community.”¹¹⁴ Social-ecological resilient communities, then, might successfully use these arms to improvise and socially learn within the disaster context. While there were examples of organizations and the social networks providing residents opportunities for resilience, barriers evolved due to the risks involved with participating in reparation efforts and the struggle for efficient recovery.

ORGANIZATIONAL SUCCESSES

Organizational success for resilience began before Hurricane Sandy in organizations’ ability to stimulate place attachment and biophilia within the communities. Organizations like NYRP, GreenThumb, and Trees NY establish social networks within the communities and provide opportunities for residents to engage with their ecology, contributing to the social-ecological system at work. Thus, resilience not only relies on the ability for groups to improvise, socially learn, and connect with nature through civic ecology practices, but to have an established network that provides inherent meaning to these spaces. An organizational leader described a previously decrepit park that was now a central community space: “you’ll see thousands of people on the bike path, grilling and stuff like that...they know who we are and we talk to them and get them engaged

¹¹¹ Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

¹¹² Anonymous 2, Interview.

¹¹³ Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

¹¹⁴ Russell R. Dynes, “Organizational Involvement and Changes in Community Structure in Disaster,” *The American Behavioral Scientist*, 13, no. 3 (1970): 430

in what we are doing...just getting them to understand this is your back yard.”¹¹⁵ Through the programs that they run, the organizations create space for an organic sense of community to develop over time, and for residents to feel ownership over these areas. One survey respondent wrote about his volunteer experience: “this survey reminded me of beautiful moments over the 10 years I spent volunteering for NYC Parks, Mtd. Auxiliary Unit in Central Park, Van Cortlandt Park, Cloves Lakes Park, and Prospect Park...the Toyota Children’s Learning Center. The Spring Picnic was held there one year...I love the city **because** of its Green Spaces. They are our lifeblood and the wellspring from which concrete shelter and the evolution of technology flow.” The opportunity to volunteer in these parks fosters love and connection between the green spaces and the individuals and communities that use them. Therefore, social-ecological resilience relies in part on the ability for non-profit organizations such as NYRP, GreenThumb, and Trees NY to create these networks and opportunities for topophilia and biophilia.

Inter-organizational coordination was evident in the Roots of Peace Community Garden and their relationship with P.S. 65 Schools. John Garcia, the head of the garden, was able to get in touch with the students from P.S. 65 a few days after Hurricane Sandy and through this interaction was able to organize a clean up of the garden, in which the wind relocated the Greenhouse, flung off its door, and damaged garden beds. Garcia commented on the relationship between the garden and the school at this time:

Believe it or not [the school] played a big, big role, because getting the rest of the community that I would normally get didn’t look like it would happen at all. Those students really made a huge difference in actually cleaning up the garden, the park, and getting things done that quite frankly I didn’t think we would be able to get done.¹¹⁶

Using existing social networks, the Roots of Peace Community Garden was able to improvise a response to Hurricane Sandy and the damage it faced. Under the leadership role of Garcia, students were able to interact with each other and the ecological surroundings almost immediately after Hurricane Sandy, contributing to their resilience in the wake of a disaster. A survey respondent who is the chair of his/her school garden committee also wrote of school coordination: “I felt more connected to the school after so many of the staff assisted in cleaning up the school garden after the storm.”¹¹⁷ The sense of connection and importance of community involvement felt by Mr. Garcia and the survey respondent show that existing social networks are being used, and in turn, increased social-ecological resilience and improvisation within the school and garden communities.

A similar effort took place on Red Hook Community Farm in Brooklyn, where crops planted on soil that rests on top of the pavement were wiped completely to the edge of the lot by the flooding. David, the head composter for Red Hook Community Farm, said that while he was unsure about maintaining the new volunteers, “hundreds of volunteers from near and far” and other organizations came to help with the clean up.¹¹⁸ A younger volunteer recalled the experience as “people kept pouring in and in” and that he would have “felt bad not doing it.”¹¹⁹ After a few days, the farm was repaired to the extent it could be before soil testing would dictate the farm’s next moves. Social learning took place when community members in the farm began to discuss future

¹¹⁵ Anonymous 1, Interview.

¹¹⁶ Garcia, Interview.

¹¹⁷ Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

¹¹⁸ David, Interview.

¹¹⁹ Pristelle, Interview.

mitigation efforts for flooding in the form of a cement wall that might be placed around the exterior of the garden to prevent flooding. Thus, multiple stages of social-ecological resilience was evident in the farm's ability to gather the community together using existing social networks with other organizations in the area, such as the Red Hook Initiative, and then transgress into the following stages of social learning and improvement.

ORGANIZATIONAL FRUSTRATIONS AND VOLUNTEER LIMITATIONS

Community Miscommunication with Organizations

Unfortunately, a reliance on existing social networks can also pose barriers for social-ecological resilience. A large barrier existed in the miscommunication between organizations and the community residents. The NYC Parks Department was an organization whose responsibility was blurred in the eyes of residents. One community gardener wrote of an arrangement for NYC Parks Department to arrive with a truck after garden members cut branches and repaired garden structures. However the truck never arrived at the arranged date, "leaving garden members waiting in sub-freezing weather for hours."¹²⁰ Another resident wrote of an arrangement where Parks Department and GreenThumb were present during the clean up phase, cutting up an 80-foot tree that had fallen, because this task required special tools that the gardeners did not have. However, "there [was] still uncleared debris and branches in the garden that [NYC Parks Department] never removed." Others similarly wrote of trees that remained "cut up in the street," or "downed and had to be removed [but] have not been replaced as of yet."¹²¹ Two respondents attempted to call the Parks Service number (311), but did not witness an active respondent.¹²² The miscommunication is confusing; as community residents were left wondering whose responsibility it is to take care of the fallen trees:

The cleanup process was confusing for those of us that have community gardens. I called 311 (the city) when our large willow fell over and they told me they would record the request. When I called back a month later, they told me that since the tree was not on the sidewalk, it was not a city tree and they wouldn't clean it up. This made it very difficult to find someone to help clean up the garden.¹²³

Miscommunication with larger organizations threatens the sense of trust community members feel with their organizational counterparts that is necessary for resilience. Communication failures not only disrupt existing social networks, but possibility prevent future efforts to communicate in disaster situations. While resilience may certainly be achieved in other ways (i.e., community residents organizing themselves to solve the tasks presented by disasters), the disruption of trust between organizations and the community members breaks down the social-ecological networks rather than build them up. In reviewing the DROP model, the instances previously described can be observed when resilience does not occur, and we are left with a low degree of recovery.

¹²⁰ Dutton, Elizabeth. "Hurricane Sandy and Our Green Spaces." Survey.

¹²¹ Dutton, Elizabeth. "Hurricane Sandy and Our Green Spaces." Survey.

¹²² Dutton, Elizabeth. "Hurricane Sandy and Our Green Spaces." Survey.

¹²³ Dutton, Elizabeth. "Hurricane Sandy and Our Green Spaces." Survey.

Inter-Organizational Confusion

Indeed, organizations experienced varying levels of confusion in the days and weeks following Hurricane Sandy, as existing social networks were used to improvise the reparation efforts and different roles of the organizations. One organizational leader explained that reparation efforts could at times be slow because they “require a lot of agencies to coordinate a lot of restoration work.”¹²⁴ Additionally, while employees of non-profit organizations like GreenThumb were working together under one goal to repair the damage, there was miscommunication within some of the organizations, due to the overwhelming amounts of repair and work:

Everyone had their personal jobs; everyone [was] assigned all these different projects. There was all – just – a lot of chaos in a way. Because everyone was getting attached to all these various areas, but it didn’t seem that the efforts were consolidated. There wasn’t any concerted effort in how to approach it. We just knew there was a lot of damage everywhere. And wherever there was a call, we were going to address it... There’s still much work to be done.¹²⁵

The chaos described potentially shows a similar threat to existing social networks as described in the previous section. However, I will posit that the described chaos could also be interpreted as a moment of re-organization of social networks, in which a moment of improvisation ensued. The determination to finish the job (“much work to be done”) is evidence that re-organization may require an initial break-down of duties and moments of “chaos” before the proceeding moments of organization and resilience; in other words, noting that there is still work to be done shows that the breaking down of social networks in this case did not deter from the ultimate goal of the organization, which was to recover, adapt, rebuild, be resilient.

Machinery and Skill Level Barriers

One of the reasons community members relied on organizations was because of their lack of experience working with heavy machinery and the tools required for reparation. A tool mentioned on multiple occasions was the chainsaw, required to cut fallen tree limbs that blocked streets, sidewalks, and community gardens. Put simply by Debbie, “This is New York City. So people don’t have chainsaws here unless they are some kind of murderer or something.”¹²⁶ Thus, required use of chainsaws was left up to the organizations that had access to the equipment and employees who were trained to use them. Several staff members from NYRP who were qualified to operate the chainsaw would cut fallen trees as other staff members removed the limbs from the park.¹²⁷

¹²⁴ Anonymous 2, Interview.

¹²⁵ Anonymous 2, Interview.

¹²⁶ Maiorani, Interview.

¹²⁷ Anonymous 1, Interview.



Photo 6: NYRP staff member using a chainsaw

Indeed, some areas with extensive damage required expertise. The NYC Parks Department brought in smoke jumpers to use chainsaws and operate other forms of equipment.¹²⁸ This requirement for a high level of experience prevented community members from participating in the more intensive aspects of ecological recovery, and thus prevented opportunities for social-ecological resilience in addition to the existing volunteer activities.

Yet, were there opportunities for volunteers to learn how to use heavy equipment, like chainsaws? While participation in the more intensive activities was not the sole factor of social-ecological resilience, the opportunity to learn how to use chainsaws would have provided opportunity for improvisation and social learning in the wake of Hurricane Sandy. Residents who learn to use the chainsaw might then be qualified to repair downed trees in the future. However, there was a consensus among the community organizations that the reparation activities that required heavy equipment were not appropriate for volunteers, and a lack of social resources in order to teach volunteers how to operate such equipment.

There certainly was the desire and people feel a tremendous responsibility when something happens...but unfortunately we didn't have work for large groups of untrained people.¹²⁹

We did get a number of requests from people saying 'what can I do to help?' And unfortunately in a lot of those situations people don't realize it but the professional response teams are the people who are slated to do these tasks, like parks department, already have their hands full just managing the situation and now figuring out how to manage 50 volunteers is really distracting... Sometimes you can hear the frustration of people going 'I want to go out and rent a chainsaw' and it's like 'but you don't know how! And that's not safe!' Parks Department has plenty of people who know how to use a chainsaw.¹³⁰

¹²⁸ Bishop, Interview.

¹²⁹ Doroski, Interview.

¹³⁰ Bishop, Interview.

Right now [reparation includes] just cleaning up woody debris. A lot of woody debris was piled up in the community gardens that is pretty hard for residents themselves or community members to clear all of that themselves or remove it to a location where its no longer in the space.¹³¹

Thus, a system of reliance is established between residents and the community organizations that work to maintain the green spaces and coordinate volunteer activities. Left to depend on community organizations and the NYC Parks Department to clear the debris, fallen trees and branches, residents were unsure of their responsibilities or capabilities.

There was a consensus, however, between the organizations and volunteers of how volunteers should operate within the reparation. Marise Hausner expressed her understanding of the importance of efficiency:

I would have liked to have been able to help, but I do realize that the damage was so horrific that I probably just would have gotten in the way...and I'm sure from their perspective, it would have been a question of exposure and preventing the people from doing what they had to do.¹³²

Thus, in spaces that require technical skill to repair damage, community residents were not involved in reparation activity. Instead, they became sideline recipients of reparation work left to community organizations and the NYC Parks Department. In anxious anticipation for such repair two survey respondents wrote of their reliance on initial organized relief. The first respondent knew of the NYC Parks Department and Army Corps of Engineers' presence in the area and their work to clean the beach and boardwalk, but wrote that "until that is done and there is a plan, *not much can be done*."¹³³ Similarly, the second respondent wrote of the overwhelming damage in his/her community in Rockaway, which prevented visualization of a green space reparation to begin without outside organizational structure. "There is not even a place to start to plant or do anything until Parks Department starts to repair and rebuild. The plan is to plant dunes and some protection...but we are in limbo."¹³⁴ Due to the lack of ability to operate equipment and the amount of damage, residents await the responses from government and non-governmental agencies. Thus, while organizations may experience resilience in their task to re-organize, communicate, and coordinate with each other, residents are prevented from resilience due to their lack of opportunity to participate in this process.

Physical Risks of Clean Up

Residents were also prevented from participation in the clean up processes because of the inherent physical danger, especially in the case of fallen trees. Anticipation of these risks was evident in both the mindset of the community organizations as well as the residents who lived nearby damaged green spaces.

It's dangerous...there was a delay to get down there to clean things because they didn't want anybody there, because they weren't sure how safe it was or what the heck was going on. So there was a delay in getting civilians involved, for good reason.¹³⁵

¹³¹ Anonymous 2, Interview.

¹³² Hausner, Interview.

¹³³ Dutton, Elizabeth. "Hurricane Sandy and Our Green Spaces." Survey.

¹³⁴ Dutton, Elizabeth. "Hurricane Sandy and Our Green Spaces." Survey.

¹³⁵ Maiorani, Interview.

Taking the precautions to avoid civilian injury and/or death was a therefore necessary step before any forms of action were taken. However, initial evaluations of the damage by residents and/or organizations did not ensure stages of clean up and preparation to repair the damage. One respondent described the complications that ensued after a significant period in between Hurricane Sandy and attempted clean ups for a forty foot tree that fell in his/her neighborhood:

Rodents have taken over nesting in debris which requires assistance from another agency. [There are no current clean ups because] fear of mold, and not having the proper HEPA mask and gear for people prone to respiratory [problems]. There is only so much a volunteer can do. It is a situation that requires good pay for hard labor.¹³⁶

This statement reverberates Walker et Al.'s theories about the difficulties for recovery that arise when a community remains in a disturbed state. An initial lack of clean up involvement, sometimes due to the initial existing danger that prevents resident and/or organizational access, has the potential to lead to additional dangers, which might only further prevent action for repair. A vicious cycle follows, where it is left up to only those who have the proper gear or equipment to participate in reparation activities.

Lack of Communication/Multiple Actors Barrier

In other cases, clean up action happened so quickly that resilience was prevented. Jeffrey, who runs a food pantry farm associated with a church, described the experiences he had with the National Guard and their execution of the clean up process for the farm. The pastor of the church arranged for the National Guard to clean up the church yard; in the process, this clean up extended into the grounds of the farm. Jeffrey, unaware of how quickly the National Guard would arrive, was unable to prepare. "I didn't have time to salvage a couple of things I think I could have... I think they just wanted to, you know, clean up and move on to the next."¹³⁷ Due to existing damage in other places and time sensitivity mentioned previously to begin initial clean ups (and avoid cycles of inactivity), social networks are lost. It seems that the clean up of the farm was outside of Jeffrey's control, and happened before time to improvise a solid plan in coordination with the National Guard and the Church.

[The National Guard] actually cleaned it better than I would have liked them to. They took away stuff I could have composted. You know, I would definitely have composted a lot of the stuff that they took away. I cherish compost... I think it's gold.¹³⁸

While the saving of compost was not imperative to the future functioning of the garden, a moment of communication might have increased social-ecological resilience in that Jeffrey and others involved with the garden would be able to communicate with the National Guard about the compost. This communication in a disaster-related context could contribute to social-ecological resilience as a moment of learning.

¹³⁶ Dutton, Elizabeth. "Hurricane Sandy and Our Green Spaces." Survey.

¹³⁷ Bruney, Interview.

¹³⁸ Bruney, Interview.

Lack of Accessibility Prevents Resilience

While the previously discussed limitations for resilience were abstract barriers that include social networks and skill levels, the most obvious barriers were physical ones that literally prevented citizen involvement in clean up processes and access to destroyed spaces. Access to the destroyed spaces is vital to social-ecological resilience in which humans and their ecological counterparts are actors within a larger system, interacting, improvising, and completing the tasks required to address the disruptions. Despite the existence of urgent biophilia, and a citizen curiosity and desire to be involved (see section on Urgent Biophilia page xx), parks that sustained a significant amount of damage were blocked off from residents. Two residents described the situations at their local parks:

Physically manned 24/7. All the different parking lots. There is a physical person at each one of those parking lots all of the time. And they will turn you around and get you out of there, even if you are walking, you cant even walk there, they wont let you do it...I talk to them and I ask them 'what are you doing?' And they'll tell you nothing, or 'I just stand here all day to tell people to go away' ...¹³⁹

Their paths are changed or they're not even accessible right now and/or not safe to go to. I could see where I had been 3 weeks before that was blocked off on Highland Boulevard. There were people there, the crews, looking like they were trying to work on the shoreline area. So I think – I'm not involved with the reading, to find out where the priorities are for the island. I don't know whose doing it.¹⁴⁰

Actively prevented from physically entering the parks, residents were left to wonder about the damage and the status of reparation, of which they were not a part. Residents experiencing topophilia and an urgent biophilia, who might otherwise participate in clean up efforts that extend into community resilience, lack the options to do so.

Lack of Knowledge/Awareness

Survey results showed that those who participated in clean ups were more aware of how parks, gardens, and trees are maintained in their neighborhood. For example, community gardeners who participated in clean ups were 32% more aware of other clean ups happening (+32%) than those who did.¹⁴¹ This awareness serves as a foundational network for residents to understand how these spaces were affected as well as who to contact about reparation efforts. Thus, similar to physical barriers preventing awareness, a lack of awareness can contribute to a physical barrier, as residents who are not aware are unsure of what organizations are in charge or reparation. Awareness and physical barriers then act on an equal duality as both can prevent the other. Marise Hausner, a concerned member of her neighborhood park, Dag Hammarskjold Plaza, expressed interest in the damage by immediately emailing the local park organization after Hurricane Sandy. "I don't know who did the clean up...I don't know if they hired somebody or if they just got the Department of Parks to do something...Nobody got back to me, so I'm assuming – I don't know

¹³⁹ Anonymous 1, Interview.

¹⁴⁰ Wright, Interview.

¹⁴¹ Dutton, Elizabeth. "Hurricane Sandy and Our Green Spaces." Survey.

what to assume.”¹⁴² Marise is a perfect example of a willing volunteer who was prevented access to resilience due to a lack of initial awareness.

Yet, this foundational awareness became less imperative as clean ups extended beyond the local sphere. When not aware of local reparation efforts, residents were aware of cleanups in other areas of New York City. For example, out of nineteen participants at a cleanup in Conference House Park, located at the southernmost tip of New York on Staten Island, only two participants were from Staten Island, with fifteen participants living 10+ miles away. While local residents were not interviewed about their relationship with Conference House Park, it is perplexing why participants in the park clean up, although from New York City, were not from the local area. Additionally, only three of the clean up participants had visited Conference House Park prior to the day of the clean up and therefore lacked evidence of topophilic reactions or attachment to place as reasons for participation. This may mean that urgent biophilia, exhibited in this case through the civic ecology practice of park clean up, can be expressed outside of the local realm, and may not correlate directly with topophilia in a resilience framework. Further evidence of this can be found in the immense amount of outside efforts and aid that came into New York City, and the Gander air crash studied by Wright et Al., which expanded the circles of trauma and action beyond tangibly affected individuals. Additionally, awareness of cleanup efforts outside of the local realm may be more accessible when larger and better-known organizations, such as the NYC Parks Department, are present in the aftermath of a disaster. Organizing widespread reparation efforts and operating under a larger social network, NYC Parks Department and similarly large organizations, increase awareness and the opportunities for resilience outside of residents’ local neighborhood. Although Marise Hausner was unable to find the local reparation efforts for the Dag Hammarskjold Plaza, she was very aware of clean ups outside of her neighborhood:

[The Parks Department] were saying things like if you want to go to Brooklyn or Queens for clean up, which I didn’t want to do quite frankly. I wanted to stay within my immediate area...[they] were pretty good about letting people know what they could do to help, but it was in other boroughs.¹⁴³

Opportunities for social-ecological resilience, then, are more accessible outside of immediate neighborhoods when the social-ecological networks are more widely aware and less deeply aware.

Residents were presented with physical, danger, communication, and awareness barriers in their attempts to understand the aftermath of Hurricane Sandy. While this report does not seek to assign fault for the existence of these barriers, or suggest that these barriers are either wrong or right, it is important to acknowledge their existence as we continue to understand resilience. The involvement of the community may have its limitations within a realistic analysis of how we recover quickly, and recovering quickly its own contribution to resilience as Walker et Al. discuss in their work. However, exposed to community members’ perspectives, and framing our work in the idea that social-ecological resilience is not just an added “extra” benefit after disaster, but integral to future community success, we may realize room for improvement, and look forward to how to increase resilience and constructively critique the barriers presented. As one resident said:

Hurricane Sandy was an emotional and physical disaster for many gardeners and its aftermath has proven that serious management is in order to bridge the gap between, who needs assistance, providers and how dollars are spent in replacing the green community.¹⁴⁴

¹⁴² Hausner, Interview.

¹⁴³ Hausner, Interview.

¹⁴⁴ Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

SIGNS OF RESILIENCE

The most direct evaluation of SES resilience exists in the review of civic ecology practices in the form of participation in green space reparation efforts after Hurricane Sandy. In accordance with Tidball et al.'s work, it is those who made tangible connections to nature in the aftermath of disaster that display the strongest signs of SES resilience (though topophilia, biophilia, and sense of community may be felt among a larger group).

HIGH VOLUNTEER DESIRE

Civic ecology practices begin with the desire from community residents to participate in green space activities within their communities. In the context of Hurricane Sandy and the damage it caused to green spaces, these civic ecology practices manifested in the form of participation in green space reparation. The desire to participate in these reparation efforts was first evident in membership responses to organizational calls for volunteers. NYRP had a "tremendous response from people wanting to come out and help" after sending a list-serve email.¹⁴⁵ Trees NY had a similar response with resident inquiries akin to NYRP,¹⁴⁶ while GreenThumb experienced an extensive response in the forms of phone calls to 311 to report damage.¹⁴⁷ Initial online and telephone responses complemented physical responses to the damage in which residents exhibited curiosity and desire to help. Organizations wrote of people who "understood the importance of checking out the parks and seeing how they were doing and offering their support,"¹⁴⁸ "the people who live in this neighborhood, they can see the damage...people would call, 'Do you have an opportunity for us to volunteer?' and they would just show up."¹⁴⁹ The immediate concern for green spaces and the desire to act that followed could be seen as topophilic or urgent biophilic reactions to the damage. Danica, from NYRP said of the reactions: "There certainly was the desire [to help] and people felt tremendous responsibility when something happens."¹⁵⁰ Though unclear whether this responsibility was felt communally or individually, the idea that responsibility served as a motivator relates to a topophilic reaction to damage, in which residents felt ownership of place and therefore the need to respond to a threat in that specific place.

URGENT BIOPHILIA

Recalling Tidball's examination of biologic attraction in the aftermath of disasters, urgent biophilia is an expression of resilience in which communities and individuals feel an immediate affinity for nature and an urge to express it.¹⁵¹ Aside from participation in the clean ups, urgent biophilia manifested in individual and shared therapy and reflection of the damage with increased outdoor activity. One survey respondent wrote, "I have always felt a strong connection to nature. I hold such places as very sacred spaces. Whenever I am stressed, or overcome by a feeling of loss, a 30 minute or more walk on the East River Esplanade or a visit to my community garden, and/or

¹⁴⁵ Doroski, Interview.

¹⁴⁶ Bishop, Interview.

¹⁴⁷ Anonymous 2, Interview.

¹⁴⁸ Doroski, Interview.

¹⁴⁹ Maiorani, Interview.

¹⁵⁰ Maiorani, Interview.

¹⁵¹ Tidball, Keith. "Urgent Biophilia: Human-Nature Interactions and Biological Attractions in Disaster Resilience." *Ecology and Society*. 17. no. 2 .

parkland remediates my feelings of sadness.”¹⁵² It is unclear whether Hurricane Sandy ignited the stress or loss discussed by this respondent, but their mentioning of it within the survey tells us that it was brought to mind. Another respondent wrote of a premeditated walk that illuminated damage:

A few days before the hurricane, my husband and I walked through Prospect Park to look at the trees and the surrounding area. A month after the storm we took the same walk and the amount of trees down was heart breaking especially some of the older trees knocked down. The trees are part of the community and their fall is a great lose to our community. They are our link to the past and when they fall, the connection is broken.¹⁵³

This premeditation shows a form of urgent biophilia and shared memory in the desire to understand and digest the changed surroundings and damage with a partner. Connection here does not extend to an urge to express affinity for nature, but in initial “process of remembering” that is a necessary first step.

This process of remembering was also observed in the masses of people that flocked to green spaces. One resident predicted the causes of this phenomenon to be in the forms of therapy it offers:

Gateway Park is packed with people. So its not just that we’ve had nice weather the past few days...its incredible how many folks use the park all of the time, and I know that quite a bit of them are displaced from at least here and some of the others from along the way.¹⁵⁴

Those who were facing residential damage, then, sought out parks and green spaces in order to confront the disaster, again in a process of remembering. A staff member from NYRP recalled the curiosity of residents within the days after Hurricane Sandy in their attempts to explore a nearby park that was blocked off to the public.

They had police officers blocking the road...People just, I don’t know – one of my co-workers there saw a parent with their child walking through the path in High Ridge Park where there are trees down...You know it caught people’s attention. You want to see...I think it is just a curiosity to see how bad it is. And again, maybe they have that feeling, like this is my backyard, I need to see what happened here, I need to see how bad this was. Or just that adventurous nature where you know, you want to see... We [NYRP] are constantly saying ‘You know, you can’t come through here, there’s a lot of down trees,’ [but] there are so many entrances to the parks [and it’s] not like they are going to hassle at each of the entrances...I’m up there removing debris and these ladies want to jog through the park. The officer is like, ‘the park is closed, for real?’ And you can see, I’m standing here, this tree is like this [she motions] and they want to jog on that, and I’m like, wow.¹⁵⁵

While public determination to physically engage with parks in the days following Hurricane Sandy indicates a public ignorance to potential dangers such as a falling tree limbs, this determination also displays a curiosity that perhaps shows a process of remembering. Disregarding authority in order to investigate damage, routinely exercise, or walk inside the park shows a unique sense of community and individual resolve to connect with nature in the immediate aftermath of Hurricane Sandy, and in turn, signs of urgent biophilia.

In one instance, citizen tree pruners displayed a sense of urgency to investigate damage despite not being in official season to tree prune.

¹⁵² Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

¹⁵³ Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

¹⁵⁴ Maiorani, Interview.

¹⁵⁵ Anonymous 1, Interview.

However, we did inquire as to whether we could go out and do stuff and supposedly the damage was so extensive we were told to stay away and if we could just log where the damage was or what needed to be replaced. And they didn't want us touching trees.¹⁵⁶

The urgent biophilia expressed by the citizen pruners manifested in their ability to log damage. Yet, again, we see an organizational restriction with their involvement in repair efforts, as they are told to avoid areas with extensive damage. A question arises of the relationship between repair and resilience: does SES resilience rely on complete integration of the community in the repair efforts? In other words, would SES resilience have increased if residents had been allowed to participate in the full repair effort? Answering these questions is not simple. As discussed previously, SES resilience does not exist linearly but rather in a multidimensional form with many pathways. It is possible that a lack of physical connection (not touching trees) does not correlate with resilience in this instance. However, it is important to recall SES literature that connects direct participation and resilience. While we cannot extrapolate that resilience is inhibited with decreased community integration within repair efforts, we can note that *opportunities* for resilience are inhibited.

IMPROVISATION AND SOCIAL LEARNING

Two signs of resilience previously discussed are improvisation and social learning. While a temporal limitation of this study was its immediacy after Hurricane Sandy (conducted within the first three months), evidence for and against improvisation and social learning were found. I predict that only increased improvisation and social learning have occurred since the initiation of this report, that would further support evidence of civic ecology practices fostering SES resilience in the post-disaster context.

Organizations supported ideas of community improvisation and learning. A GreenThumb representative appreciated the organized response of the community gardeners in response to the damage:

But also just how [the community gardeners] approached it was very strategic and with the understanding that they have to work with a lot of other people who may not exactly know where they're coming from and their experience with dealing with this space and the history of help they received.¹⁵⁷

This type of organization was evident in a sign posted on the exterior fence of a community garden that advertised government assistance for those affected by Hurricane Sandy. While the sign did not involve information about the community garden itself, it resembles SES resilience and improvisation in residents expanding the existing functioning social-ecological network of the community garden to include additional social networks that benefit the community. Additionally, the sign represents potential social learning in that the community may then use the garden in the future for multiple networks (see Photo 7).

¹⁵⁶ Hausner, Interview.

¹⁵⁷ Anonymous 2, Interview.

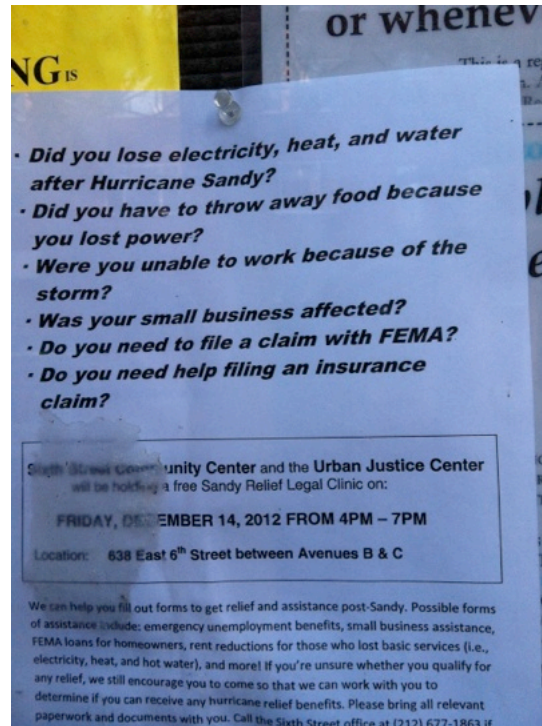


Photo 7: Improvisation with increased Social Networks

However, improvisation in the form of such organizational efforts was not always evident. While the cold weather may have delayed reparation efforts, some community gardens were found in distraught states, often looking abandoned, unvisited. Due to the limitations of this report being conducted in January, deducing that this lack of reparation efforts in community green spaces signifies decreased levels of participation is unsound. Still, in compensating for other green spaces that did experience large reparation efforts, a deeper analysis of seemingly abandoned green spaces may reveal a lack of improvisation and in turn, SES resilience.



Photo 8: Seemingly abandoned community garden

Social learning formed in a desire to amend existing disaster mitigation efforts. One survey respondent wrote of her concerns for the tree pits in her neighborhood:

“My major concern... is that the fences around [the trees] are solid metal for the first six or more inches allowing dirt to be filled in for planting flowers. This is harmful to the trunk of the tree since the dirt also covers the lower few inches of the tree bark, which can be harmful for the tree.”¹⁵⁸

Though not explicitly referring to Hurricane Sandy, his/her concerns were evoked in response to the storm while taking the online survey. Similarly, another survey respondent discussed future changes to tree care: “there should be more attention to dead branches when a storm is coming so that no damage would happen.”¹⁵⁹ David, from the Red Hook Community Farm, discussed the idea of a cement wall that would surround the farm, preventing future floodwaters from wiping away the contents of the farm as they did after Hurricane Sandy. While these mitigation efforts may not become fruitful, they display social learning in community members’ desire to adapt and change the existing mitigation structure within their communities.

Recommendations

These recommendations are discussed with the goal of increased SES resilience in future post-disaster contexts both in New York City and elsewhere. The first recommendation is for organizations and community members to create a transparent social network by which they can communicate damage and the responsibilities inherent in community response to large-scale disaster. Designated responsibilities could then be open to modification and improvisation in the post-disaster context, but would provide an initial reference for the responsibilities of both community members and organizations for resulting damage, especially in those situations that proved confusing after Hurricane Sandy, with residents left wondering when the NYC Parks Department would return to collect tree debris.

Secondly, the launch of a distinct disaster context citizen-training course that incorporated the use of chainsaws and other technical equipment would increase SES resilience. The course could be modeled after the Trees NY citizen-pruning course that has proved highly successful with the example of citizens using the skills they learned in the citizen pruning course after Hurricane Sandy. These community members would acquire both technical equipment knowledge as well as knowledge of existing regulations that could clarify community and organization miscommunication. For example, instead of residents attempting to understand citizen and organizational responsibilities after disasters by calling 311, they could call their local disaster expert. This would also decrease some of the ensuing chaos within organizations in the post-disaster context as they sort through an immense amount of information and inquiries from the public.

A third recommendation would be for increased public awareness of the SES resilience literature. While communities may be able to recognize resilience in its abstract forms (feelings and memories), a shift from conceptualizing resilience as an abstract idea to conceptualizing it as a tangible action may increase opportunities for SES resilience. I am not suggesting a linear change

¹⁵⁸ Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

¹⁵⁹ Dutton, Elizabeth. “Hurricane Sandy and Our Green Spaces.” Survey.

in resilience literature from the rich multiplicities and complicated nuances. Rather, I am suggesting that communities may benefit from a practical examination of how these theories play out in the physical world. One example is an increased dialogue of resilience akin to Rebecca Solnit's *A Paradise in Hell*, challenging fear-based chaotic imagery of post-disaster communities. Another example might be community recognition of existing social networks, topophilia, urgent biophilia, improvisation and social learning that takes place after a disaster. Without disturbing the organic nature of resilience (in that communities may at times experience it without an intrinsic recognition), community organizations could encourage conversations of SES resilience. This recognition may further be acknowledged as a form of social learning and resilience in and of itself.

Conclusion

Disasters impart unique moments of reflection, often illuminating the underlying realities within our communities. Inspired by the work of the Civic Ecology Lab at Cornell University, this report seeks to identify ways in which civic ecology practices in the form of reparation efforts contributed to SES resilience in the aftermath of Hurricane Sandy. Opportunities for resilience in the forms of urgent biophilia, topophilia, and existing social-ecological networks were found, as well as examples of improvisation and social learning. Those who suffered significant damage to their homes and community green spaces contributed interesting findings in that they were presented with multiple forms of opportunities (adaptive capacity exceeded) as well as barriers for resilience (adaptive capacity exceeded), as well as barriers. Most notably, community organizations and the NYC Parks Department were often directly related to both these opportunities and barriers. From this, I conclude that increased transparency of organization to community social networks, installation of a citizen disaster response program, and space for SES resilience dialogue would enhance SES resilience.

With community gardens flooded, old and familiar trees felled, park landscapes forever changed, and the destruction of personal homes and community spaces, the damage Hurricane Sandy inflicted on its path is devastating. Communities are presented with the task of survival, as the effects of Hurricane Sandy remain long after the storm ravaged New York City. Yet in the face of ruin, resilience finds a place. Community gardeners co-ordinate with local schools to repair garden damage, community members visit their local parks to reflect on changed landscapes, residents who experience damage to their homes find time to prioritize community spaces. These moments of resilience are subtle, but powerful catalysts for strengthened communities that deserve to be recognized. What we plant in winter will certainly flower in the spring.

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- Anonymous 2, Interview by Elizabeth Dutton (in person), New York City, NY, January 15, 2013.
- Danica Doroski, Interview by Elizabeth Dutton (telephone), Los Angeles, CA, February 11, 2013.
- David, Interview by Elizabeth Dutton (in person), New York City, NY, January 9, 2013.

Debbie Maiorani, Interview by Elizabeth Dutton (telephone), Los Angeles, CA, March 17, 2013.

Jeffrey Bruney, Interview by Elizabeth Dutton (telephone), Los Angeles, CA, March 13, 2013.

John Garcia, Interview by Elizabeth Dutton (telephone), Los Angeles, CA, March 12, 2013.

Joyce Wright, Interview by Elizabeth Dutton (telephone), Los Angeles, CA, March 15, 2013.

Marise Hausner, Interview by Elizabeth Dutton (telephone), Los Angeles, CA, February 16, 2013.

Melicia Pristelle, Interview by Elizabeth Dutton (in person), New York City, NY, January 10, 2013.

Sam Bishop, Interview by Elizabeth Dutton (in person), New York City, NY, January 6, 2013.

Susan Fowler, Interview by Elizabeth Dutton (telephone), Los Angeles, CA, March 19, 2013.

Appendices

Appendix A: Definitions

Social Network: self constructed by society in a process of ‘alignment’ or ‘coordination,’ best described as a continual recursive communication process that eventually allows different people to understand each other, share values and beliefs, and generally work together to achieve their aims

Ecological Network: food-webs (or plant-pollinator networks, or species-habitat networks) that transfer energy and genetic information

Adaptive Capacity: the collective adaptability, coping capacity and resilience of a population.”

Collective Efficacy: the shared belief that a group can effectively meet environmental demands and improve their lives through a concerted effort

Improvisation: community actions and solutions that aid the recovery process

Social learning: these improvised actions are incorporated into policy-making and/or a form of preparation for future events

Topophilia: attachment to place and the symbolic meanings that underlie this attachment.

Urgent Biophilia: a surge in existence of biophilia within the post-disaster context that stimulate immediate and conscious actions, often beyond merely individuals to include neighborhoods, communities, and whole societies

Appendix B: Survey Design

The survey was designed in a way that first identified the respondent to a smaller subgroup and then identified levels of urgent biophilia and resilience. The first section categorized respondents into three distinct categories (with the ability for overlap): community gardener, arborist, park go-ers. A second tier of categorization existed in the level of damage the respondent experienced in both private and public spaces, level of awareness, and participation in clean up efforts. This second tier was separated from the first because it categorized respondents more on the experiences and opinions about themselves they had rather than a concrete identity (tier one). While this first section mostly categorized, there were follow-up questions depending on the given answers that delved into personal reflection. For example, those who participated in clean up efforts were asked to either agree or disagree with a series of statements such as “I participated in park clean up because I felt it was my civic duty.” Those who did not participate in clean ups were forwarded to the next area of the survey. Thus, this first section served as both a categorization and the beginnings of an analysis of the respondent’s opinions and personal reflections.

The second section of the survey similarly listed a series of statements that served as measurements of urgent biophilia and hypothesized opinions that might have affected level of participation in clean up, such as the level of satisfaction with government and community response to Hurricane Sandy. In designing the survey, the abstractness of “urgent biophilia” became quickly apparent. One cannot ask a respondent, “do you feel urgent biophilia?” because it is a psychological, somewhat vague, and sometimes unaware state. Therefore, I designed my own rubric for urgent biophilia and used a format of asking participants to agree on varying levels with the following statements:

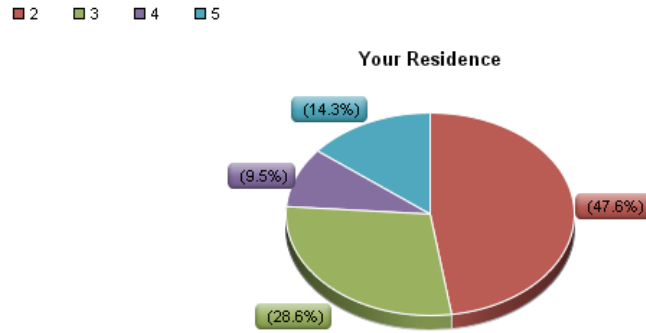
I feel ownership of the parks in my neighborhood.
I feel ownership of the trees in my neighborhood.
I feel ownership of the community gardens in my neighborhood.
After Hurricane Sandy, I felt more connected to my community.
After Hurricane Sandy, I felt more connected to the nature in my community.
I sought out nature within my community spaces (such as parks, trees, or community gardens) after Hurricane Sandy for personal reflection and/or therapy.
Community response to Hurricane Sandy elicited a feeling of positivity and unification rather than a feeling of negativity and chaos.
After Hurricane Sandy, I felt an overall desire to become more involved in my community
After Hurricane Sandy, I felt an overall desire to become more connected to the existing nature within my community.

There are an infinite number of ways one might choose to measure urgent biophilia, topophilia, or other aspects of social-ecological resilience, but I felt that these questions of ownership, positivity, and connection to nature were the most direct ways to measure varying levels of resilience within the different subgroups. In analyzing these statements, one might wonder: “Did people who participated in park clean up feel more positivity and unification than negativity and chaos?” While we cannot know which causes the other, the answers to these statements allow us to draw correlations between different subgroups and their resilience after Hurricane Sandy.

The nature of self-identification among respondents, or lack of a given rubric of what constitutes different levels (1-5), inhibits us from understanding the specific details of each respondent’s experience. For example, when asked of the amount of damage to certain spaces such as personal residence and neighborhood parks from Hurricane Sandy, there is no rubric provided for the respondent. A scale of 1-5 is left open for them to interpret how much damage they sustained. While this process creates a subjective scale relative to each respondent’s view of their own experience, and therefore an inaccurate measure of objective levels of damage, it is integral to the process of understanding urgent biophilia because biophilia is a psychological phenomenon directly related to how the individuals and communities internalize their own experience and find resilience. Rather than technical details, it is the ways in which residents perceived damage that is important.

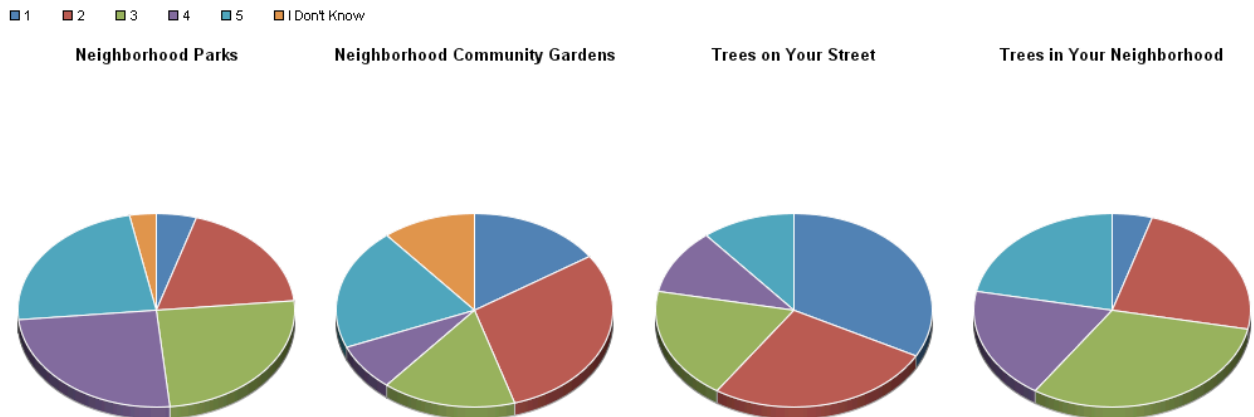
Appendix C: Residential Damage Subgroup

Significant damage to personal residences is defined in the survey by a selection higher than 1 on a scale of 1-5 when asked the level of damage to the respondent’s residence. A total of 21 respondents responded higher than 1 (27%). Notably, over half of the respondents experienced damage greater than 2 and almost a third of respondents have residences that are “still not repaired.” (See graph below) This large range of damage should be remembered when evaluating the data. We are not just talking about people who have only experienced damage of 2 but people who have sustained what they consider to be the highest level of damage possible. These are people coming from different levels of damage, different experiences, the only similarity is that they all sustained damage greater than 1. Makes data more reliable because of holistic view.



Appendix C: Green Space Damage Subgroup

Significant damage to green spaces within the survey was defined by a selection higher than 2 on a scale of 1-5 when asked the level of damage to varying green spaces. Notably, levels of damage were not just constrained to one number, but rather expanded between 2-5.



Appendix D: Written Survey Responses

This Appendix includes community responses from the survey that were used throughout the report. Not all written responses in this Appendix were used.

Question 85: This is the last question. This survey asked questions about your experience with the green spaces (parks, community gardens, and trees) in your community after Hurricane Sandy. If possible, please elaborate on any personal experiences you had after Hurricane Sandy that involve these natural spaces and/or any experiences that this survey reminded you of that you feel comfortable sharing. There is no word limit.

Text Response

Explaining to my children about how the trees fell down was challenging. They are under 3. We didn't watch anything on the news, too scary. They wanted to go to the playground, and could not. We were so lucky not to suffer severe damage.

we need green spaces in our city to buffer climate change events. they're cheaper than sea walls...

I am very upset that the beach has been closed and I suspect it's because it is not being restored at the moment. I now go to Gateway Beach, which is part of the US Park system and has been opened for quite some time even though the damage is obvious. I know there has been a bit of cleanup done to the beach at the Conference House but the effects of Hurricane Sandy are mostly still apparent in th greenspaces of Staten Island.

After hurricane Sandy our local area was fine. So I volunteered at an evacuation center to help people. I knew later I could help my local trees.

I was amazed to see trees on pelham parkway destroyed. It is a humbling experience to see the power of nature

I spent a good deal of time doing recovery work in the rockaways and breezy point. I was truly saddened to see what happened to the beaches and boardwalk. It was also very hard to see our new Brooklyn bridge park have so much damage that we could not use it after sundown and that has affected me very much.

Removing the felled trees from our community garden was a job that had to be done. The garden has other trees and a great variety of other plantings, so it will still be quite nice. I was surprised and pleased at how quickly felled street trees on our block were removed. One of them had crushed the top of a car. It still looked driveable, at least for short distances, but it stayed in place for at least two weeks after the tree was removed. As far as I know it wasn't ticketed for violating alternate side parking regulations, which was an appropriate kindness to the owner (who is unknown to me).

The devastation caused by Hurricane Irene impacted my yard and the yards of my neighbor's much more significantly. Perhaps one reason I can't feel much reaction to Sandy is that Hurricane Irene bowled over five tremendous trees, which ended up entangled in our back yard. I take a long view of trees as my training is in forestry. I have last fall, donated trees to our neighborhood park and will continue to . I enjoy raising trees from seed and watching them outgrow our small garden patch. While I am not the most avid park volunteer, I have been giving of my time and energy to our local park since the mid '80s.

I am the Root of Peace Community Garden president on Staten Island and former Civic president of the community. I am also the HOA president. I am a very active civic individual. After Sandy it only motivated me more to help.

A few days before the hurricane, my husband and I walked through prospect park, to look at the trees and the surrounding area. Month after the storm we took the same walk and the amount of trees down was heart breaking especially some of the older trees knocked down. The trees are part of the community and their fall is a great loss to our community. They are our link to the past and when they fall, the connection is broken.

I'm a New York City teacher, on our school's garden committee. I felt more connected to the school after some many of the staff assisted in cleaning up the school garden after the storm.

I volunteered in State Island with my coworkers from my Program. It was devastating to see the piles of garbage and debris on the beaches. I was also surprised at the resilience of the plants in the community gardens. In one garden, the large plastic awning/tent structure was completely knocked down, but the 2-foot cabbage stalks were still standing. It was a great example of how nature deals with nature.

Roosevelt island has its own government and I was quite pleased with their immediate response to all needs on the island.

:-) that there should be more attention to dead branches when a storm is coming .So that no damages would happen.

The amount of damage is staggering. Complete landscapes have changed, which change the character of the land we love.

It was difficult to volunteer in an unfamiliar neighborhood with no cell phone, and limited access to toilet, water and food. In some volunteer situations you had to take your own food and water, and improper masks and gloves were given (for example cloth gardening gloves to handle cold wet sand) victims that were eligible for relief had no way of knowing because they had no internet, or phone and still have no service. in fact this survey is geared towards

people that have internet , and it assumes that a person can use a computer and read English. Gardening is a grass-roots, hands on activity, and a survey of this type is better suited to an individual whose idea of gardening is limited by a lens filtered by a pastoral, institutional, perspective. Clean up is a nice word for volunteers. Hurricane Sandy was an emotional and physical disaster for many gardeners and its aftermath has proven that serious management is in order to bridge the gap between, who needs assistance, providers and how dollars are spent in replacing the green community

The clean up process was confusing for those of us that have community gardens. I called 311 (the city) when our large willow fell over and they told me they would record the request. When I called back a month later they told me that since the tree was not on the sidewalk it was not a city tree and they wouldn't clean it up. This made it very difficult to find someone to help clean up the garden.

I have always felt a strong connection to Nature. I hold such places as very sacred spaces. When ever I am stressed, or overcome by a feeling of loss, a 30 minute or more walk on the East River Esplanade or a visit to my Community Garden, and/or parkland remediates my feeling of sadness. I am 75 years old, and I wish that I could do as much as I used to do outdoors in our Public Open Spaces. I am at a loss for the de-natured spirits of our children. The loss of our ability to grow our own food, and that some of this knowledge will be lost to future generations.

The Brooklyn Botanic Garden's plant collection suffered greatly with many beautiful tree specimens destroyed. Some neighborhoods like mine in Clinton Hill suffered little damage from Hurricane Sandy Some like the Rockaways looked like war zones with many toppled trees and utility lines

I went to rockaway beach to go help with the efforts out there. I was devastated byt the destruction this storm has caused. I have not yet gone to coney island.... It is too difficult for me to deal with.

My Brother who lived in an area of rockaway was very effected. He lost power, his whole basement , boiler , hot water heater and furnishings. It was very bad and he is finally recovering now. 3 months later.

I work for the parks dept. I chose to go out and work long hours in street tree clean up. It was a surprise how vulnerable the trees were. Many large old trees were growing in narrow tree pits and many fell on houses and in the street. I am glad nyc planted so many new trees recently because we lost so many older trees.

Green spaces are and will always be important to me however when you see and read about people and the loss of their homes and family members it doesn't seem that important. Where do people live and how can they get their lives back. By the same token I feel that here on Staten Island in spite of the green nature of the island the parks aren't as utilized. There is such a density of people and recent house building so close to and on wetlands, which I find very disturbing. The parks before Sandy were left to be overgrown and in some places unsafe. There is a shortage of funds but why not have youth cut, pick up, sweep etc. There's even more work to be done since Sandy but only because of Sandy. Thanks for listening.

For me, Hurricane Sandy heightens my sensitivity to the fact that raw, natural, green spaces are often taken for granted. Trees that had stood a lifetime toppled like cards and landscapes were changed in an instant.

I spend a lot of time in the parks in my neighborhood. I am the coordinator for a small community garden, in which I spend time working every week. I am very aware of how important the space is to the neighborhood, as people stop by to talk with us every week when we are working. The two big parks in my neighborhood were profoundly affected by the storm. Many large trees came down or lost significant branches. The parks were closed for several weeks because it was too dangerous for people to be in them. Clean up efforts are still ongoing. While I have gone back to walking in the park on a regular basis, I am still startled to notice trees that are missing. Our parks are still very beautiful, but they are changed. Of course, new trees and plantings will replace those that were damaged, but it will take a long time for them to become integrated into the existing landscape.

I had offered to volunteer to help clean up DHP, but received no response from the local volunteer associations. I realize the damage was extraordinary, but I'm sure there would have been a way for us to help, if everyone weren't so pre-occupied with liability.

This survey reminded me of beautiful moments over the 10 years I spent volunteering for NYC Parks Mtd Auxiliary Unit, in Central Park, Van Cortlandt Park, Clove Lakes Park, and Prospect Park. I also recalled gaining access to Coradan Eva Eden Garden through Greenthumb and NYRP, now the Toyota Children's Learning Garden. The Spring Picnic was held there one year, Bette Midler and all. I love the city BECAUSE of it's Green Spaces, they are our lifeblood and the wellspring from which concrete shelter and the evolution of technology flow.

My major concerns for the trees in tree pits along the sidewalks of my Upper West Side neighborhood is that the

fences around them are solid metal for the first 6 or more inches allowing dirt to be filled in for planting flowers. This is harmful to the trunk of the tree since the dirt also covers the lower few inches of the tree bark, which can be harmful to the tree. By the way - I think some of the questions in the questionnaire repeated.

...this took waaay too long and I answered neither agree/disagree to the last few because it felt like I had answered them before. For personal experience I used the 311 app to report damage early on.

A great aspect of any outcome to a severe storm is that it illuminates the areas of our community that need greater assistance and attention. There's still a lot of work to do towards taking care of sandy-related damages; nonetheless, there's a lot of community members continuing to work on handling these matters. Their positive attitudes reflect the strength of community engagement and one of the key reasons NYC remains on a productive path towards Sandy-related recovery.

First of all, thanks for preparing the survey and especially for making it possible to return to where I was unexpectedly interrupted in taking it. I have been involved with street tree care in my neighborhood since the 1970's when I took the Trees NY course for the first time. There have been efforts by individuals and community groups over these years to plant and care for trees on our streets and care for our parks. I would be happy to describe this history in more detail, but will focus here on the immediate community efforts and the recent response to Sandy. The East Sixties Neighborhood Association has an established citizen pruner group, encourages people to take the Trees NY course, provides tools and coordinates regular pruning sessions in the summers and regular monitoring of the care of existing trees and requests new and replacement trees in the neighborhood from the Parks Department. See the ESNA website for specific information on this ongoing effort to enhance the quality of life of the residences through active tree stewardship.

Nothing, thank you.

I have always felt strongly connected to city parks & so Hurricane Sandy didn't change that; I didn't volunteer to help with cleanup only because of a demanding work schedule that allows for little free time. I don't feel any more or less connected to parks as a result of the storm, again because I have always felt connected, as a taxpayer, NYC resident & community activist. I did seek out parks for therapy after Hurricane Sandy (and continue to do so), because I turn to green spaces for healing & reflection to cope with any stressful event. -I do not feel connected to community gardens, because there aren't any in my neighborhood (or if there are, I'm not aware of them) and the ones in the closest neighborhoods, they seem so inaccessible to become a part of!

Appendix E: Survey

The online survey was active for a three-week period from February to March. This left participants time to start and finish the survey. Respondents were not allowed to review their previous answers, and most pages consisted of only one question at a time. 89 respondents began the survey with 57 finishing. Data used in this report did not filter out respondents who did not finish. Additionally, not all questions were displayed to all respondents. The flow of the survey involved a complex system by which different answers led to different questions. Due to the complication of this flow, only a list of questions is included in this appendix and the format is omitted. The general structure eliminated questions about certain green spaces that respondents did not associate with. For example, questions about tree maintenance were skipped for those who answered that they did not take care of trees.

Hurricane Sandy and Our Green Spaces

Hello. This survey will take anywhere from 10-20 minutes to complete. The questions within this survey involve Hurricane Sandy and the green spaces within your community, such as parks, community gardens, and trees in an attempt to understand how these spaces were affected by Hurricane Sandy and community response to the damage. Please note that while this survey is not designed to elicit emotional response, the nature of the topic of this survey may evoke an emotional response. If at any point you feel uncomfortable continuing the survey, please stop. Results will be used for an undergraduate thesis at Occidental College and will be displayed on the Occidental College Urban and Environmental Policy website for public use. A link to this thesis will be sent to the organization that brought you here and will be accessible in May 2013.

Thank you for taking the time to fill out this survey! If there are any questions, please contact the researcher via email at dutton@oxy.edu.

I would also like to apologize to those who have attempted to take this survey but found no option for Staten Island as an answer to the questions asking about residence. I understand that this reflects a very serious problem with Staten Island often being considered the "forgotten borough" and that it is highly offensive that it was not previously included. Please understand that this was a mistake of the researcher, and Staten Island was meant to be included as an answer to this question. If you have questions or would like to contact me directly (at the above email address) about this mistake, please feel free to do so. Again, my sincerest apologies.

1. What organization brought you to this survey?

2. Where is your current residence?

- Brooklyn
- Queens
- Bronx
- Manhattan
- Staten Island
- Other _____

3. Where was your residence prior to Hurricane Sandy?

- Brooklyn
- Queens
- Bronx
- Manhattan
- Staten Island
- Other _____

6. How long did it take to fully repair the damage to the following places?

	A few days	1 week	1-4 Weeks	4-12 Weeks	Still not repaired
Your Residence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neighborhood Residences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neighborhood Parks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neighborhood Community Gardens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trees on Your Street	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trees in Your Neighborhood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Do you belong to a community garden?

- Yes
- No

8. How long have you belonged to this community garden?

- 0-6 months
- 6-12 months
- 1-2 years
- 2-5 years
- 5+ years

9. How would you describe your level of involvement with the community garden you belong to?

- Inactive
- Slightly Active
- Consistently Active
- Highly Active

10. How often do you visit the community garden you belong to?

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

11. Are you satisfied with the amount of time you spend in community gardens?

- Very Dissatisfied
- Dissatisfied
- Neutral
- Satisfied
- Very Satisfied

12. Why do you belong to a community garden? (Please select all that apply)

- Fresh Produce
- Pleasure of the Outdoors
- Required for Organization Membership
- Horticulture/Plant Therapy
- Socially Engage with Neighbors
- Economic Benefits
- Community Activity
- Family Activity
- Other _____

13. How important is a sense of community to the community garden you belong to?

- Not at all Important
- Very Unimportant
- Neither Important nor Unimportant
- Very Important
- Extremely Important

14. On a scale of 1-5 with 1 being little/no damage and 5 being extremely severe damage, what was the level of damage to the community garden you belong to?

- 1
- 2
- 3
- 4
- 5
- I Don't Know

15. If possible, please elaborate on the damage to the community garden.

16. After Hurricane Sandy, were there cleanup efforts to repair the damage to your community garden?

- Yes
- No
- I Don't Know

17. Who organized the cleanup efforts for the community garden you belong to?

- Trees NY
- New York Restoration Project
- New York City Community Garden Coalition (NYCCGC)
- GreenThumb
- NYC Parks Department
- I Don't Know
- Other _____

18. Did you participate in these cleanup efforts for the community garden you belong to?

- Yes
- No

19. If possible, please elaborate on what tasks were involved in the cleanup efforts for the community garden you belong to.

20. Please indicate your level of agreement for the following statement: "I participated in the cleanup efforts for the community garden I belong to because..."

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
...I had an individual desire to help my community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...My personal garden was damaged.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I feel emotionally attached to the community garden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I felt that cleanup was my civic duty.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was a community activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was a family activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was an organizational activity (i.e., church, school...).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. On a scale of 1-5 with 1 being little/no damage and 5 being extremely severe damage, what was the level of damage to other community gardens in your neighborhood?

22. If possible, please elaborate on the damage to the community garden.

23. After Hurricane Sandy, were there cleanup efforts to repair this damage in other community gardens?

- Yes
- No
- I Don't Know

24. Who organized the cleanup efforts for the community garden(s)?

25. Did you participate in these cleanup efforts for the community garden(s)?

- Yes
- No

26. If possible, please elaborate on what tasks were involved in the cleanup efforts for the community garden(s).

27. Please indicate your level of agreement for the following completions to this statement: "I participated in the cleanup efforts in damaged community gardens other than my own because..."

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
...I had an individual desire to help my community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I feel emotionally attached to community gardens.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I felt that cleanup was my civic duty.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was a community activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was a family activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was an organizational activity (i.e., church, school...).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. Please indicate your level of agreement for the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The amount of damage to community gardens from Hurricane Sandy was overwhelming.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel more connected to my community garden after Hurricane Sandy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was attached to specific areas of the community garden that were damaged.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am more motivated to partake in volunteer and community driven activities within community gardens after Hurricane Sandy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hurricane Sandy affected the way I think about my community garden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. You mentioned previously that community gardens within your neighborhood are still not fully repaired. If possible, can you elaborate more on what the current damage is? Feel free to write as little or as much as you like.

30. Are there current efforts to repair the damage to the community gardens?

- Yes
- No
- I Don't Know

31. Who is organizing the current efforts to repair the community gardens within your neighborhood?

32. You stated that there are no current cleanup efforts, yet there is still existing damage. If possible, can you elaborate on why there are no clean up efforts? Feel free to write as little or as much as you like.

33. You do not belong to a community garden. However, have you participated in any community garden activities within the last year? (This can include clean up)

- Yes
- No

34. How often do you visit community gardens?

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

35. Are you satisfied with the amount of time you spend in community gardens?

- Very Dissatisfied
- Dissatisfied
- Neutral
- Satisfied
- Very Satisfied

36. Why do you visit community gardens?

37. On a scale of 1-5 with 1 being little/no damage and 5 being extremely severe damage, what was the level of damage to the community garden(s) that you have visited within the last year?

- 1
- 2
- 3
- 4
- 5
- I Don't Know

38. If possible, please elaborate on the damage to the community garden(s).

39. After Hurricane Sandy were there cleanup efforts to repair the damage to the community garden(s)?

- Yes
- No
- I Don't Know

40. Who organized the cleanup efforts for the community garden(s)?

- Trees NY
- New York Restoration Project
- New York City Community Garden Coalition (NYCCGC)
- GreenThumb
- NYC Parks Department
- I Don't Know
- Other _____

41. Did you participate in these cleanup efforts for the community garden(s)?

- Yes
- No

42. If possible, please elaborate on what tasks were involved in the clean efforts for the community gardens.

43. Please indicate your level of agreement for the following completions to this statement: "I participated in the cleanup efforts in the community garden(s) because..."

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
...I had an individual desire to help my community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I feel emotionally attached to community gardens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I felt that cleanup was my civic duty.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was a community activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was a family activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was an organizational activity (i.e., church, school...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

44. Please indicate your level of agreement for the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The amount of damage to community gardens from Hurricane Sandy was overwhelming.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel more connected to community gardens after Hurricane Sandy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was attached to specific areas of the community garden that were damaged.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am more motivated to partake in volunteer and community driven activities within community gardens after Hurricane Sandy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hurricane Sandy affected the way I think about community gardens.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

45. You mentioned previously that community gardens within your neighborhood are still not fully repaired. If possible, can you elaborate more on what the current damage is? Feel free to write as little or as much as you like.

46. Are there current efforts to repair the damage to those community gardens?

- Yes
- No
- I Don't Know

47. Who is organizing the current efforts to repair those community gardens that are still not repaired?

48. You stated that there are no current cleanup efforts, yet there is still existing damage. If possible, can you elaborate on why there are no clean up efforts? Feel free to write as little or as much as you like.

49. Do you maintain/take care of any trees in your neighborhood? (This can include but is not limited to pruning, watering, etc.)

- Yes
- No

50. How many trees do you take care of?

- 1
- 2
- 3
- 4
- 5
- 6+

51. How long have you taken care of the tree(s)?

- 0-6 months
- 6-12 months
- 1-2 years
- 2-5 years
- 5+ years

52. How would you describe your level of involvement with taking care of the tree(s)?

- Inactive
- Slightly Active
- Consistently Active
- Highly Active

53. Are you satisfied with the amount of time you spend with the trees in your neighborhood?

- Very Dissatisfied
- Dissatisfied
- Neutral
- Satisfied
- Very Satisfied

54. Why do you take care of the tree(s)?

- Increasing Aesthetic of the Street
- Pleasure of the Outdoors
- Required for Organization Membership
- Horticulture/Plant Therapy
- Family Activity
- Socially Engage with Neighbors
- Urban Sustainability
- Other _____

55. How important are trees within your community?

- Not at all Important
- Very Unimportant
- Neither Important nor Unimportant
- Very Important
- Extremely Important

56. On a scale of 1-5 with 1 being little/no damage and 5 being extremely severe damage, what was the level damage to the tree(s) you take care of?

- 1
- 2
- 3
- 4
- 5
- I Don't Know

57. If possible, please elaborate on the damage to the tree(s).

58. After Hurricane Sandy, were there cleanup efforts to repair the damage to the tree(s) within your neighborhood?

- Yes
- No
- I Don't Know

59. Who organized the cleanup efforts to repair the tree damage?

- Trees NY
- New York Restoration Project
- New York City Community Garden Coalition (NYCCGC)
- GreenThumb
- NYC Parks Department
- I don't know
- Other _____

60. Did you participate in cleanup efforts to repair tree damage?

- Yes
- No

61. If possible, please elaborate on what tasks were involved in the cleanup efforts for the tree(s).

62. Please indicate your level of agreement for the following completions to this statement: I participated in the cleanup efforts to repair tree damage because..."

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
...I had an individual desire to help my community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...the tree I maintain was damaged.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I feel emotionally attached to trees.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I felt that cleanup was my civic duty.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was a community activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was a family activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was an organizational activity (i.e., church, school...).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

63. Please indicate your level of agreement for the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The amount of damage to trees from Hurricane Sandy was overwhelming.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel more connected to trees after Hurricane Sandy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was attached to specific trees that were damaged.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am more motivated to partake in volunteer and community driven activities to take care of trees after Hurricane Sandy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hurricane Sandy affected the way I think about trees.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

64. You mentioned previously that trees within your neighborhood or street are still not fully repaired. If possible, can you elaborate more on what the current damage is? Feel free to write as little or as much as you like.

65. Are there current efforts to repair the damage to the tree(s)?

- Yes
- No
- I Don't Know

66. Who is organizing the current efforts to repair the tree(s) within your neighborhood?

67. You stated that there are no current cleanup efforts, yet there is still existing damage. If possible, can you elaborate on why there are no clean up efforts? Feel free to write as little or as much as you like.

68. How often do you visit parks?

- Never
- Rarely
- Sometimes
- Often
- All of the Time

69. Are you satisfied with the amount of time you spend in parks?

- Very Dissatisfied
- Dissatisfied
- Neutral
- Satisfied
- Very Satisfied

70. Why do you visit parks?

- Pleasure of the Outdoors
- Required for Organization Membership
- Nature Therapy/Personal Health
- Family Activity
- Socially Engage with Neighbors
- Urban Sustainability
- Exercise
- Other _____

71. How important are parks within your community?

- Not at all Important
- Very Unimportant
- Neither Important nor Unimportant
- Very Important
- Extremely Important

72. On a scale of 1-5 with 1 being little/no damage and 5 being extremely severe damage, what was the level damage to the park(s) you visit?

- 1
- 2
- 3
- 4
- 5
- I Don't Know

73. If possible, please elaborate on the damage to the park(s).

74. After Hurricane Sandy, were there cleanup efforts to repair the damage to the parks in your neighborhood or parks you visit?

- Yes
- No
- I Don't Know

75. Who organized the cleanup efforts to repair park damage?

- Trees NY
- New York Restoration Project
- New York City Community Garden Coalition (NYCCGC)
- GreenThumb
- NYC Parks Department
- I don't know
- Other _____

76. Did you participate in the cleanup efforts to repair park damage?

- Yes
- No

77. Please indicate your level of agreement for the following completions to this statement: "I participated in the cleanup efforts to repair the park(s) because..."

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
...I felt an individual desire to help my community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...the park I visit was damaged.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I feel emotionally attached to parks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I felt that cleanup was my civic duty.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was a community activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...it was a family activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

78. Please indicate your level of agreement for the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I was overwhelmed by the damage to parks after Hurricane Sandy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel more connected to parks after Hurricane Sandy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was attached to specific areas of the park that were damaged.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am more motivated to partake in volunteer and community driven activities within parks after Hurricane Sandy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hurricane Sandy affected the way I think about my parks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

79. You mentioned previously that parks within your neighborhood are still not fully repaired. If possible, can you elaborate more on what the current damage is? Feel free to write as little or as much as you like.

80. Are there current efforts to repair the damage to the park(s)?

- Yes
- No
- I Don't Know

81. Who is organizing the current efforts to repair the park(s) within your neighborhood?

82. You stated that there are no current cleanup efforts, yet there is still existing damage. If possible, can you elaborate on why there are no clean up efforts? Feel free to write as little or as much as you like.

83. Please indicate your level of agreement for the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I feel ownership of the parks in my neighborhood.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel ownership of the trees in my neighborhood.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel ownership of the community gardens in my neighborhood.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with the government's overall response to Hurricane Sandy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with the community's overall response to Hurricane Sandy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I fear a Hurricane of similar magnitude hitting New York City in my lifetime.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

84. Please indicate your level of agreement for the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
After Hurricane Sandy, I felt more connected to my community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After Hurricane Sandy, I felt more connected to the nature in my community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I sought out nature within community spaces (such as parks, trees, or community gardens) after Hurricane Sandy for personal reflection and/or therapy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community response to Hurricane Sandy elicited a feeling of positivity and unification rather than a feeling of negativity and chaos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After Hurricane Sandy, I felt an overall desire to become more involved in my community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After Hurricane Sandy, I felt an overall desire to become more connected to the existing nature within my community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

85. This is the last question. This survey asked questions about your experience with the green spaces (parks, community gardens, and trees) in your community after Hurricane Sandy. If possible, please elaborate on any personal experiences you had after Hurricane Sandy that involve these natural spaces and/or any experiences that this survey reminded you of that you feel comfortable sharing. There is no word limit.

Thank you for taking this survey! Results will be used for an undergraduate thesis at Occidental College and will be displayed on the Occidental College Urban and Environmental Policy website for public use. A link to this thesis will be sent to the organization that brought you here and will be accessible in May 2013. If you have any questions, please feel free to contact the researcher at dutton@oxy.edu.

If you are willing to participate in a more in-depth interview on the topic of green spaces and community involvement after Hurricane Sandy, please provide contact information below. This contact information will only be seen by the researcher, Elizabeth Dutton. In-depth interviews are highly appreciated and an integral part of this research. Community gardeners and tree pruners are especially encouraged to participate. Interviews are conducted via telephone and take anywhere from 20-40 minutes.

If you do not feel comfortable providing information, please leave this section blank, and press the next button.

Name

Email

Phone Number