Reading the Landscape:
A Social Assessment of
Parks and their Natural Areas in
Jamaica Bay Communities

Social Assessment White Paper No. 1

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Executive Summary

Urban parks play a vital role in the ecological health of our cities, the social life of local residents, and the economic viability of our neighborhoods. But how do New Yorkers use, value and assign meaning to parks, and in particular, to less programmed or 'wilder' spaces in parks? How might we collect this data in a comprehensive yet efficient way so that it can be used by land managers and, ultimately, benefit the public?

For decades, city park professionals have interacted with the public directly through community use of and involvement in parks. Often these interactions take place in recreation areas, park houses, and at community meetings. Rarely have the social and ecological attributes of these spaces been studied in a systematic, empirical way through direct observations, interviews, and recording the physical traces left behind by park users coupled with systematically sampled assessments of upland forests and wetlands. This social assessment was launched by the U.S. Forest Service social science team in New York City in partnership with the Natural Areas Conservancy (NAC) and New York City Parks & Recreation (NYC Parks). The social assessment serves as a complement to the NAC's city-wide ecological assessment. These rich data sets are intended to be used to improve the health of the environment and the experience of the park user.

This desire to better understand social dynamics on a site and regional scale has a practical application. Urban parks and their natural areas need an active and engaged constituency in order to assure their viability and sustainability in the future. With humans being as our primary subject, we find that our task is not only complex and dynamic, but filled with fascination and discovery. We hope that this assessment along with scientific articles, other communications, and further data synthesis will mark the beginning of what will become an enhanced way of knowing, valuing and programming our parks in the future.

Organization of the Report:
This report presents a project overview and research findings from the 2013 Social Assessment of Parks and Their Natural Areas in Jamaica Bay Communities. In this report, we present a conceptual and geographic introduction to the research; outline our study area; introduce research methods; present detailed findings from individual sites and the study area as a whole; and offer a discussion synthesizing the findings from our mixed methods approach to the inquiry. The report is organized in two parts – the first is a full project summary and the second includes individual park profiles.

<u>Part I: Social Assessment Overview</u>
Introduction: a justification for the research and background information on ecological, social, and contextual dimensions of the study area.

Study area: this section includes a map of the research area and an outline of all sites that have been assessed.

Methods: this section presents a narrative description of the mixed-method approach to field observations and interviews with park users. Here we introduce both the system for moving

through large areas of open space and the techniques for making and recording observations. Complete research protocols are included in the **Appendices**.

Findings: **system-wide analysis and cross-park comparison**s compile phenomena across the entire study area and compares across sites. This section puts forward a synthesis focusing on major themes observed in the research: park use, meaning, stewardship, sociability, and impacts of Hurricane Sandy. Key findings include:

- *Parks provide for an important number and range of activities that are beneficial to human beings.*
- *Parks serve as local resources, but are connected through their users to a wider network of outdoor sites.*
- *Parks are a crucial form of 'nearby nature' that provides space for activities, recreation, socialization, and engagement with the environment and supports social ties and place attachment.*
- *The majority of adult park users do not participate in formal environmental stewardship groups, but information about other forms of engagement and barriers to stewardship provides insight on potential for increasing stewardship.*
- *Although relatively few park users commented independently on Hurricane Sandy, those that did discussed the way in which parks and neighborhood residents were affected by the event.*

The final sections, **Next Steps and Conclusions,** return the research to its context, discussing plans for expansion across the New York City's five boroughs, connections to existing knowledge, and implications for natural resource management and community well-being in NYC and other cities. We emphasize that this white paper is not intended to be the only depiction of the park and park users, but that it functions as a preliminary description of the 2013 data. A future white paper will present the complete citywide data from 2013-2014. In addition peer reviewed journal articles and a spatial geodatabase will further explore and analyze the dataset, including a comparison by zone. In addition, the study methodology was designed to inspire new way of thinking about, managing, and capturing the social meaning of these spaces now and in the future.

Part II: Park Profiles
This section drills down to summarize and explain findings in each of our **17** park locations surrounding Jamaica Bay. These park profiles include: a site map; narrative syntheses of findings; illustrative photographs; summary bar graphs and tables of quantitative observations; and statistics and discussion of major themes that emerged from onsite park user interviews.

Part I: Social Assessment Overview

Introduction

The Jamaica Bay region hosts a high level of biodiversity across a highly varied ecological landscape and thousands of acres of public lands and waterways (Botton et al. 2006). The surrounding neighborhoods are home to hundreds of thousands of people, and many more visit each year to enjoy the area's natural beauty and recreational opportunities. This rich environment continues to change in response to the dynamic climate. Recent events, including October 2012's Hurricane Sandy, have led policy-makers, researchers, and residents alike to call for a greater understanding of the benefits of the city's natural areas and associated open spaces. Historically, these spaces have been underexplored not only for their capacity to buffer the effects of storm surges but also for their value as places that inspire a unique and important reciprocity between people and their environment. The New York City Department of Parks and Recreation's parks and their natural areas offer specific and unique benefits to New York City and the almost 900,000 people who live in and around the Jamaica Bay area, as well as other visitors who come from further afield to enjoy the area.

Our interdisciplinary team of scientists and natural resource managers has embarked on a study that seeks to investigate and ultimately support the many social values of public green space in New York City. This study, a **Social Assessment of NYC Parks and Their Natural Areas in Jamaica Bay Communities**, explores approximately 2,140 acres of parks in the Jamaica Bay region in an effort to better understand the social meaning of these open spaces. This research provides intensive data that is a necessary complement to the extensive data sets that are available to us through remote sensing and field work that seek to capture the biophysical attributes of a site, specifically a city-wide ecological assessment of natural area parkland by the Natural Areas Conservancy. These studies are meant to complement and inform each other. Typically, park studies tend to reflect only the biophysical properties of a particular site; yet managers and decision-makers need data that also reveal the meaning and function of these sites for residents and explore how these functions vary across a range of biophysical and built conditions. This integrated assessment seeks to understand park use and social meaning through a series of systematic site observations and interviews with park users. We focus on individual perceptions of park ecosystem services and examine the social meanings of open spaces. We find that many of the services produced by the interaction between people and open space include things like social cohesion and space for personal reflection alongside improved air quality, stormwater retention, and wildlife habitat. The intent of this study is to capture the enduring patterns of why, how, when, and where urban residents engage with the outdoors.

In this study, our **primary research question** asks:

What are the uses, functions, and values of parkland as conveyed through people's *behaviors*, *descriptions*, and *narratives*?

We also explore whether and how perceptions of and interactions with parkland have been influenced by Hurricane Sandy.

Study Area

New York City has one of the largest and most diverse park systems in the United States, with 29,000 acres of parkland citywide (City of New York 2011). We selected the Jamaica Bay region because it has recently become a focus of resiliency planning and adaptive management efforts

through plans in the City of New York's *Special Initiative for Rebuilding and Resiliency*. In addition, we sought to align the social assessment's year one data collection with the NAC ecological assessment that was being conducted in Brooklyn parks in 2013. Also, the area was of interest because in 2012, then Mayor Bloomberg and Secretary of the Interior Ken Salazar signed a Cooperative Management Agreement between the National Park Service and NYC Parks to cooperatively manage 10,000 acres of federal and city-owned parks in the Jamaica Bay region. As well, this waterfront environment continues to change in response to recent disturbances, including October 2012's Hurricane Sandy, which inundated nearly our entire study area with floodwater (FEMA 2014).

The Jamaica Bay landscape includes thousands of acres of public lands and waterways, including salt marshes, grasslands, coastal woodlands, maritime shrublands, and brackish and freshwater wetlands. Despite threats from development, sea level rise, and combined sewer overflows, the Bay supports a diverse array of fish, bird, and invertebrate species due to its unique variety of ecological habitats and location along the Atlantic flyway (Brown et al. 2001, Botton et al. 2006, City of New York DEP 2014).

The surrounding neighborhoods are home to approximately 900,000 people[1], and many more visit each year to enjoy the area's open space and recreational opportunities. As of 2010 the area was 39.4% Black Non-Hispanic, 27.9% White Non-Hispanic, 17.8% Hispanic, 9.7% Asian/Pacific Islander, and 4.3% other (US Census 2010). While income levels vary across the area, as of 2012, 35.0% of the population was on some form of federal income support (City of New York DCP 2014).

Our study area is defined by Jamaica Bay and consists of approximately 2,140 acres of public parkland managed by NYC Department of Parks & Recreation and adjacent to the Bay (Figure 1, Table 1). Additionally, it includes two parks (Brookville Park and Springfield Park) that are not directly adjacent to the water but are connected through a series of wetlands and waterways.

We excluded the following from our study area:

(1) sites not accessible by foot, vehicle, or bicycle;
(2) public swimming beaches, which require a different protocol due to the volume of users;
(3) parks managed by the National Park Service, as these have a different governance structure;
(4) community gardens, whose physical form and use patterns require a different protocol;
(5) parks closed for construction or inaccessible to the public as parkland; and
(6) parks under ten acres in size, as these were considered too small to be comparable.

We also collected observational data on NPS sites in the Gateway National Recreational Area. However, due to OMB limitations on interviewing visitors on NPS lands, we did not conduct interviews. These data are not presented in this white paper, but may be analyzed in future social assessment white papers.

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[1] We define the region as the six New York City community districts that surround the Bay: Queens Districts 10, 13, and 14 and Brooklyn Districts 5, 15, and 18 (City of New York DCP 2014).

Table 1. Characteristics of assessed NYC Parks & Recreation parks in the Jamaica Bay study area

Park	Acres*		Programming							Habitat Type			
	Total	Natural Area	BBQ	Beach	Bicycling	Dog	Playground	Sports	Water Access	Beach	Forest	Open Parkland	Wetland
Bayswater Park	25	0	•			•	•	•	•				
Beach Channel Park	2	0		•						•			
Brant Point Wildlife Sanctuary	9	4											•
Broad Channel American Park	19	6								•		•	•
Brookville Park	64	2	•		•		•	•			•	•	•
Canarsie Park	130	55				•	•	•				•	•
Dubos Point Wildlife Sanctuary	32	32											•
Four Sparrow Marsh	50	46											•
Fresh Creek Nature Preserve	40	38											•
Idlewild Park	120	96						•	•		•	•	•
Jamaica Bay Park	64	11						•					•
Marine Park	678	341			•	•	•	•	•		•	•	•
McGuire Fields	72	8										•	•
Plumb Beach	17	0		•					•	•			
Rockaway Park	194	0				•	•	•	•			•	•
Spring Creek Park	118	31						•					•
Springfield Park	22	0				•	•	•			•	•	

*Park acreage was calculated by using the NYC Parks park_property.shp, with water bodies removed from acreage using the city_DPR_Hydro_Region_2001 feature class. Natural areas acreage was calculated by using the Natural_Areas.shp and Preserves.shp, clipped to park_property.shp and with water bodies removed from acreage. Removing water bodies through this process resulted in land acreage estimates smaller than the official park acreage estimates. For example, Beach Channel Drive Park was originally recorded as 13 acres, but once underwater acreage was removed, total land area came to two acres.

Figure 1. Map of NYC parks included in the Jamaica Bay social assessment

Methods

Social and site data were collected in order to understand how urban park users value and engage with the outdoors. Primary means of understanding were direct observations of human actions, and observation of signs of human use, and assessment of language and narrative conveyed through encounters with park users.

The first phase of the project consisted of gathering relevant spatial data, conducting preliminary background informal interviews with knowledgeable NYC Parks and NAC employees and community informants, ground-truthing and scouting park sites, and developing and pre-testing all field observation protocols.

The second phase involved conducting field observations in the parks and natural areas surrounding Jamaica Bay. Throughout the peak-use summer months of June-September 2013, two field research supervisors lead the data collection effort. In July, we worked with one team of 10 members from the Jamaica Bay Restoration Corps, who were fully trained in social and site assessment of large parks sites. This team of 10 was further broken down into five 2-person field teams. Pairs were always used in order to enhance reliability through corroboration and to provide greater richness of debriefs and qualitative field notes. In addition to paired debriefs, full team debriefs were conducted at the end of each day in order to gather overall impressions, observations, and questions about sites as a whole. Drawing upon previous urban park research (e.g., Loukaitou-Sideris 1995, Chiesura 2004), we triangulated three data collection approaches: *direct observations of human activities*, *observation of signs of human use*, and *interviews with park users*. Human activities were grouped functionally by type (e.g. sitting, socializing, bicycling, exercise, nature recreation). We utilized two field observation protocols and one protocol for field interviews with residents in park (Appendix A-C). Field observation protocols guided a mix of structured, quantitative counts, qualitative field notes, and photographic documentation.

1. Parks interior observation protocol
2. Parks edge observation protocol
3. Interview protocol (implemented only inside park boundaries)

The *parks interior observation protocol* (Appendix A) was implemented in the interior of parks, which were subdivided into zones according to management practices, uses, infrastructure, and cover type (Figure 2). The park interior is defined as the area inside of the park boundary. Pairs implemented the protocol, taking photographs and logging observations of park users and signs of park use, with debriefs conducted at the completion of a zone or a neighborhood open space. The research crews covered all terrain that was navigable without extensive bushwacking, following all established trails and desire lines within each park site before moving onto another site. Crews were instructed to complete zones in a single day (e.g. not to split zones across visits).

Figure 2. Zone delineation in Marine Park, Brooklyn, NYC

The *edge observation protocol* (Appendix B) was implemented along the edge of parks, as this is a crucial zone of interface between the neighborhood and the park. The park edge is defined as the area directly adjacent to, but outside the park boundary.

The park edge can serve either as an inviting entry into the park or, in some instances, the park perimeter can be more of a barrier to park use. The protocol guided observations of the

Figure 3. Northern edge of Marine Park, beginning at the sidewalk next to cars and street

streetscape and properties adjacent to parks (Figure 3). Edge observers were instructed not to make observations of the interior of the park in order to ensure that no double counting (of

humans or signs) occurred. Research crews did not conduct interviews on the edge but took detailed notes of all encounters with individuals who voluntarily approached them to speak.

Across all sites, inside parks and on the edge, *direct human observations* were collected in a consistent manner. Type of activity and level of sociability (individual, pair, small group, large group) were counted for all people observed in a particular zone (e.g., Figure 4).

Figure 4. Walking (large group) and exercise (individual) activities in Marine Park

Indirect observations of human use of the outdoors were collected through attention to the following key areas: signs of activity; signs of neglect, decay, or damage; signs of environmental stewardship; and signage, writing, and art. See Detailed Methods and Definitions (Appendix D) and protocols (Appendices A-B) for examples of these categories. In other words, these signs are part of the traces that people leave behind in parks, offering important clues and insights into the use and value of a particular park or part of the park. These observations were counted differently on the street edge than in parks interiors, due to the difference in the volume and type of signs of use that one is likely to encounter in these different site types. The edge protocol uses structured counting and only requires photographs for certain key signs (as indicated with the camera symbol on the forms), whereas the parks interiors are documented through a photo log of every sign encountered.

Figure 5. Interview protocol

Finally, the *interview* protocol was implemented in park interiors. Minors under the age of 18 were excluded from the study and were not approached. Working in pairs, researchers selected every third park user encountered and approached for a rapid interview (Appendix C, Figure 5). This technique was used in order to introduce randomization and reduce selection bias (see Fisher et al 2011). Interviews remained anonymous.

Data Analysis

Because the study was developed in an adaptive management context, the entire study was conceived by researchers in conversation with NAC and NYC Parks managers. Adaptive management is a systems approach to learning and management that, like resilience, was conceptualized by Holling (1978). Adaptive management is useful under conditions of uncertainty, enabling managers to adjust management techniques in a structured fashion (Williams 2011). Assessments are linked to the earliest stage of adaptive management – understanding – which is followed by planning, management, and monitoring in the adaptive management feedback loop (Moser and Ekstrom 2010). From the early stages of question formulation, to protocol development, to preliminary findings, to the development of outputs, researchers consulted with natural resource managers, sought their input, and incorporated feedback. This was particularly crucial during the development of Park Profiles, which were designed to inform and serve managers directly.

We conducted quality assurance procedures including visually examining data for errors, discussing and resolving discrepancies, ensuring accurate data entry, and preparing data for analysis. In Excel, we created pivot tables to generate descriptive statistics (e.g., count, percentages) and analyze trends in quantitative field observations. Qualitative field observations and debrief notes were transcribed into Word documents. Photos were organized by park and observation type. Interview responses were entered into Excel, with closed-ended questions summarized via pivot tables.

Open-ended interview data were analyzed qualitatively. Responses to questions were coded separately by two different researchers via an open coding scheme that identified key phrases and concepts (Lofland et al. 2005; Miles & Huberman 1994). These initial codes were compared and discussed, and discrepancies were examined using an iterative approach until consensus was reached among the coders, thereby enhancing reliability (Neuman 2003). Thematic clusters were then created to aggregate common codes together into broader themes. These clusters emerged out of key phrases, repeated language, and common ideas (Ryan & Bernard 2003). Specific subcategories were retained.

Once data were cleaned, they were combined into a file geodatabase. Interview, count, and sign data were associated with specific park polygons and, where possible, by park zone. The goal of this process is to develop a platform for examining park use and meaning across space, as well as facilitating long-term storage of these data. In addition to individual park narratives and univariate statistics, we have included cross-park comparisons of frequencies in order to reveal key patterns and differences in the data across the Jamaica Bay study area.

Findings

Park Profiles

Individual park findings are described in stand-alone park profiles in Part II.

System-Wide Analysis and Cross-Park Comparison

It is important that we understand these park sites at multiple scales: zones within the park, the park as a whole, the park in relationship to other parks spaces and, and ultimately, to other neighborhood, city, and regional attributes and phenomena. In short, parks and people are part of much larger social ecological system. Below, we describe system-wide findings for the Jamaica Bay study area. When presenting graphs that compare all sampled parks, parks are listed from largest to smallest (left to right). We present these findings organized by the themes of the study:

- Park use
- Meaning
- Stewardship
- Sociability
- Hurricane Sandy

Park Use

Park users have diverse demographics.

We conducted 618 interviews, with 67 refusals, for a 90.2% response rate. Though we did not collect detailed demographic information due to the rapid, on-site nature of the interviews, we did collect observed gender and age category of respondents. The gender composition was 318 male (56.3%), 249 female (40.3%), and 21 unrecorded (3.4%). The age composition was 484 adults (78.3%), 107 seniors (17.3%), and 27 unrecorded (4.4%).

The most common reason for interview refusal was the potential interviewee did not speak English. Members of the field research team possessed foreign language skills in Spanish and Cantonese. Wherever possible, interviews were conducted in native languages. However, not all park users were encountered by our foreign-language speaking team members, or they spoke languages that our team did not (e.g. Russian). NYC is highly linguistically diverse, and we acknowledge that the inability to interview all park users in their native language has potential for biasing the study toward English speakers.

> "The users of the park were very ethnically diverse- White, Russian, Latino, Asian, African American. The crew noted more African Americans concentrated in the tennis and basketball area. The bocce ball court was occupied by old Italian men who called the park their home. Some users drive from as far as Long Island or Queens to come to Marine Park. Mike commented that there were a lot less people as compared to normal- perhaps, because of the heat. Despite this, there were still a lot of users overall, and lots of pride and love for the park. We observed many people relaxing in their cars parked in the large, mature shade trees, and many people inside the bright, open and air-conditioned community center. We also noted a very visible park worker presence."
> **From Marine Park field debrief notes**

Part I: Social Assessment Overview

Parks provide for an important number and range of activities that are beneficial to human beings.

Our counts of number of people engaging in directly observed activities offer a quantitative snapshot of what people are doing in urban parkland (Tables 2 and 4, Figure 2). The most common activities include sports and active recreation (28.8%) and walking (25.0%), which is not surprising given that parks are designed to foster uses of this kind. Parks also support community socializing in place (13.9%). Note that this category was only selected when people were observed in groups solely sitting and talking in place (e.g. barbecuing, picnicking, or talking on a bench). It was not applied to people engaged in group educational tours or sporting events, although these, too, are social activities – but they were categorized more specifically as educational tours or sports.

At the same time, parks also serve as a space to be alone and to relax, as 9.8% of people were seen sitting, resting, or standing alone. (See page 27 for an analysis of park meaning on the importance of refuge).

Many of these activities are concentrated in certain zones within the park. Some of the zone-based activity can be attributed to the physical design and materials in the park (paths, playground equipment, sports fields, etc.) but other actions are more emergent and represent adaptations by park users.

Table 2. Counts of observed human activities from three visits across all parks within the Jamaica Bay study area

Activity	Number of People	Percentage
Sports	1,737	28.8
Walking / Dog Walking	1,506	25.0
Socializing in Place, in a group	839	13.9
Sitting / Resting / Standing / Waiting / Keeping Watch on one's own	594	9.8
Bicycling	530	8.8
Jogging / Running	276	4.6
Nature Recreation	263	4.4
Working	177	2.9
Educational Group / Tour	66	1.1
Other Activity	27	0.4
Stewardship	13	0.2
Plant Collecting / Foraging / Gathering	4	0.1
Personal Property Maintenance	1	0.0
Total	**6,033**	**100.0**

Figure 6. Observed human activities

In order to detect patterns of prior use, we observed signs in the landscape made by park users and consider these to be indicators of activity and engagement with the space (Table 3, Figure 7). The most commonly identified signs of human use were graffiti, art, and murals (21.8%) that were written, drawn, and painted as forms of communication, turf-marking, and/or artistic expression.

The next most common signs were trails (20.0%), which were only counted if they were desire lines—or cut-throughs—created by erosion under people's feet. Paved or mulched trails created by park managers were not counted. NYC Parks is analyzing its system of trails through natural areas to improve navigation and access.

Similarly, our protocol instructed field researchers not to count institutional signage common to city streets and park land. Yet, other forms of signage, flyers, and stickers (17.5%) that were left by individuals, community groups, and businesses were the third most common sign of prior use.

Figure 7. Signs of prior use in parks within the Jamaica Bay study area

Table 3. Signs of prior use of parks within the Jamaica Bay study area

Sign	Count	Percentage
Graffiti, Art, Murals	210	21.8
Trails	193	20.0
Other Signage, Flyers & Stickers	169	17.5
Other (Note)	136	14.1
Illegal Dumping	90	9.3
Sitting Places	46	4.8
Sporting / Play Equipment	37	3.8
Garden in Park	22	2.3
Damaged / Vandalized Building	15	1.6
Encampment / Sleeping Area	13	1.3
Memorial / Shrine / Sacred Symbol	13	1.3
Community Bulletin Boards / Institutional Signage	6	0.6
Bird Feeder / Birdbath / Bird Box / Pond	5	0.5
Fire Pit	5	0.5
National Flags	2	0.2
Damaged Property	1	0.1
Other Garden	1	0.1
Total	**964**	**100.0**

Table 4. Number of people engaged in activities by park

	Marine Park	Rockaway Community Park	Canarsie	Idlewild	Spring Creek (NYC)	McGuire Fields	Brookville	Jamaica Bay Park	Four Sparrow Marsh	Fresh Creek	Dubos Point	Bayswater	Springfield	Broad Channel	Plumb Beach	Brant Point	Beach Channel Drive	Total
Bicycling	260	11	69		20		48				2	13	13	1	87	5	1	**530**
Educational Group / Tour	60			6														**66**
Jogging / Running	90		114		4	1	48			1		2	10		6			**276**
Nature Recreation	48	14	19	1		5	5	6		7	7	20		48	39	1	43	**263**
Other Activity	12	1	1					3		2	3			4		1		**27**
Personal Property Maintenance															1			**1**
Plant Collecting / Foraging / Gathering												4						**4**
Sitting / Resting / Standing / Waiting / Keeping Watch	255		85	1	1	83	61	2		12	2	32	38	3	13	6		**594**
Socializing in Place	249		98	13		9	95			6		306	52	6	5			**839**
Sports	714	2	246	28	5	170	279	3		14		130	113	20	13			**1,737**
Stewardship	11					1							1					**13**
Walking / Dog Walking	669	56	228	1	19	61	206			8		76	96	4	74	1	7	**1,506**
Working	44	8	47		6	13	19			3		13	23		1			**177**
Total	**2,412**	**92**	**907**	**50**	**55**	**343**	**761**	**14**	**0**	**53**	**14**	**596**	**346**	**86**	**239**	**14**	**51**	**6,033**

Number of park visitors is not strongly related to park size.

While Marine Park is the largest park and also has the most visitors, this relationship did not hold throughout the study area (Figure 8). Some of the smaller parks (Bayswater, Springfield, and Plumb Beach) had large numbers of visitors when surveyed. Some of the larger parks in terms of acreage (Rockaway Community Park, Idlewild, and Spring Creek) had lower visitation rates when surveyed. This may be because of the diversity of observed activities at a park (see Table 2), the popularity of activities at a park, or the amenities (or dis-amenities) provided by a park. For example, Beach Channel Drive is only 2 acres of land in size, but had a number of people fishing and or passing through the park. Users of Rockaway Community Park, a 193-acre scarcely-visited site, commented on discomfort from mosquitoes, and the grounds themselves were in some disrepair, aside from the maintained cricket field. Looking to individual park profiles can further answer why some of these smaller parks have high visitor use, and vice versa.

Additionally, comparing the number of visitors against the number of observed activities per park shows a strong relationship between increased observed activities and increased numbers of people (Figure 9). However, this relationship levels off at around 10 unique activities.
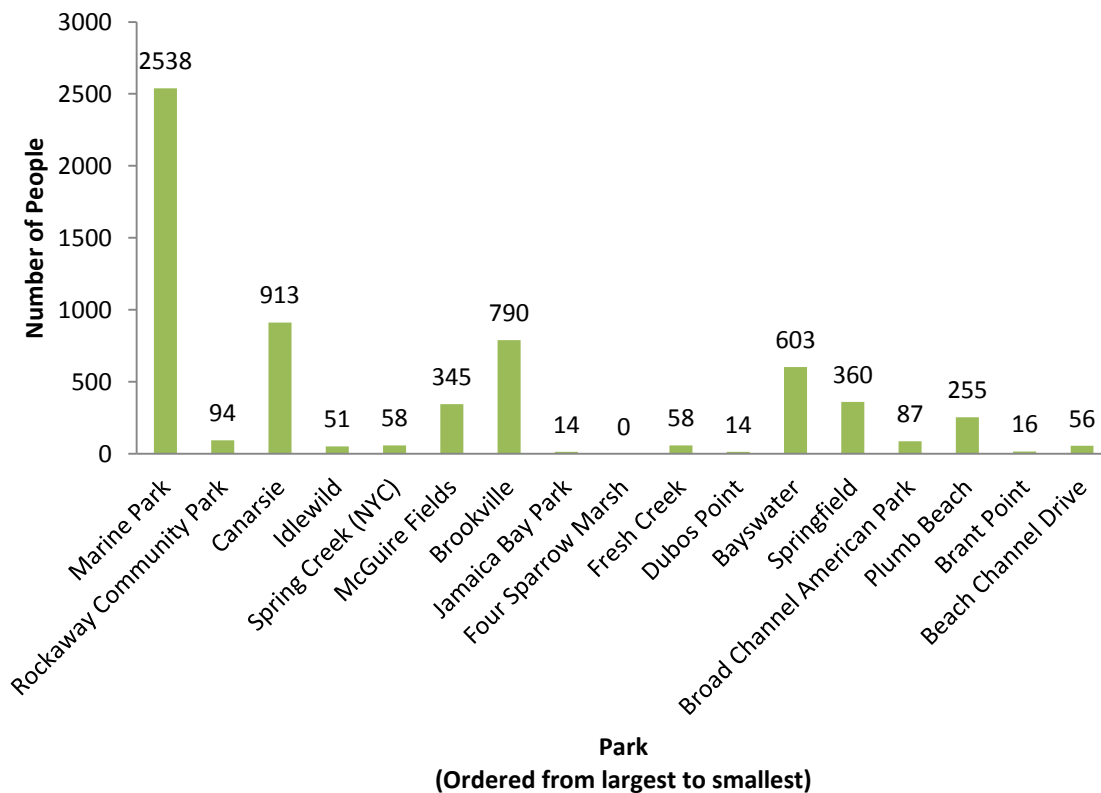

Figure 8. Total people observed from three visits by parks within the Jamaica Bay study area
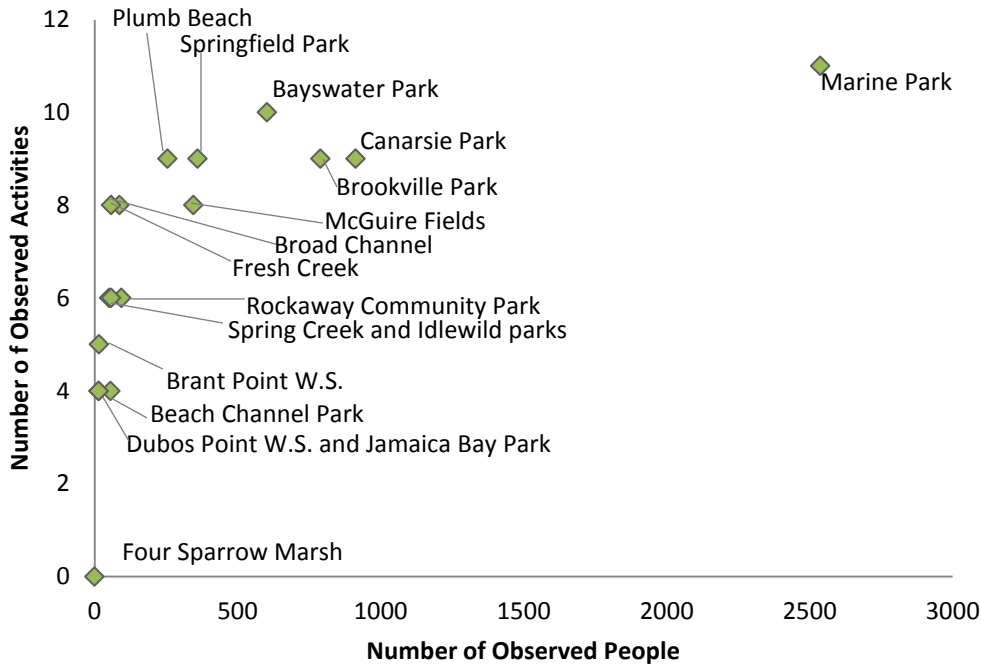
Part I: Social Assessment Overview

Figure 9. Number of people observed compared to number of observed activities per park from three visits

Park users visit often.

We also gathered information about frequency of park use via interviews. We asked park users the closed-ended question, "How often do you come to this park?" We found a range in frequency of use. The majority of respondents reported using parks on a daily (31.3%) or weekly (30.7%) basis, showing that parks are playing a function in the everyday lives of their users. What else do New Yorkers do on such a regular basis outside of going to work, being at home or attending school? It is clear that parks are part of the everyday routine of urban life. To a lesser extent, other interviewees replied that they visit parks only monthly (18.2%), occasionally (9.6%), or rarely (10.4%).

Parks serve as local resources, but are connected through their users to a wider network of outdoor sites.

Park users were bifurcated in how far they travel (Table 5), with 37.1% living within five blocks of the park in which they were interviewed, and 37.2% traveling more than 20 blocks to the park in which they were interviewed. In addition to studying parkland as ecological corridors, we can think of human park users as *social connectors* between outdoor sites. We asked park users to tell us about their recreation patterns and where else they like to go in the outdoors. When respondents told us specifically named sites, we recorded these place names, which can be cleaned, standardized, and geo-referenced in order to create a social-spatial map of the connections between outdoor sites based on shared users. Overall, 27.7% of respondents named specific New York City parks that they visit, showing how crucial the NYC park system is to NYC residents (Table 6). In this way, people are the social connectors among a network of parks and open spaces. In addition, many respondents identified *types* of sites that they visit, including beaches or waterfronts (26.4%) as the most commonly identified site type. Notably, 22.4% of

respondents said that they went 'nowhere else' in the outdoors, meaning that the particular park that they were visiting was their primary outdoor recreation site. All other site types were mentioned much less frequently, by 5% or fewer of respondents.

Table 5. Distance traveled to park by interview respondents

Distance	Number of Respondents	Percentage
Less than 5 blocks	229	37.1%
6-10 blocks	97	15.7%
11-20 blocks	60	9.7%
Over 20 blocks	230	37.2%
No response	2	0.3%
Total	**618**	**100%**

Table 6. Site types for other outdoor places visited by interview respondents

Site Type	Number of Respondents	Percentage
Named NYC park	171	27.7%
Beach or waterfront	163	26.4%
Nowhere else	137	22.2%
Out of town	50	7.5%
Sports	39	6.3%
N/A	26	4.2%
Playground	17	2.8%
Amusements	9	1.5%
Local	9	1.5%
Streets	9	1.5%
Zoo or aquarium	9	1.5%
Barbecue spot	5	0.8%
Greenway	5	0.8%
Botanical garden	3	0.5%
Nature preserve	3	0.5%
Wildlife refuge	3	0.5%
Amphitheater	2	0.3%
Community facility	2	0.3%
Garden	2	0.3%
Schoolyard	2	0.3%
Dog park	1	0.2%
Memorial	1	0.2%
Urban farm	1	0.2%
Total	**618**	**100.0%**

Part I: Social Assessment Overview

On weekdays, some parks are more visited than their surroundings, while others are infrequently visited relative to their neighborhood activity.

Comparing park visitors to passers-by outside of the park, we can see how popular certain parks are relative to their surrounding streetscape (Figure 10). Marine Park, Canarsie, Plumb Beach, and Springfield are all busier than their neighborhoods. For other parks, like Spring Creek, Fresh Creek, and Beach Channel Drive, we observe the opposite; there were more people along the parks' edges. When interpreting these results, we should be cautious, as neighborhood contexts of the parks can vary from industrial, to dense residential, to single family homes with yards. Further analysis of surrounding land use is required to understand the park in its neighborhood context.
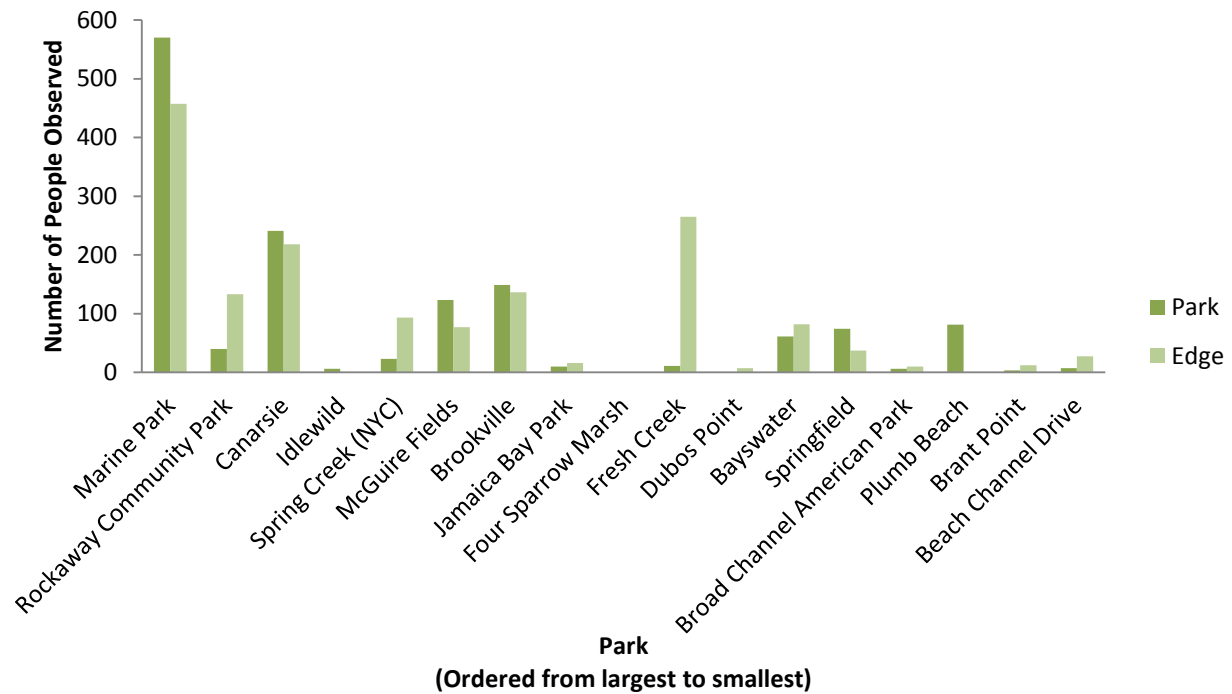

Figure 10. Total people observed per park during the weekday visit (within the park and along the park's edge)

Part I: Social Assessment Overview

People use parks for many activities, but the number of activities observed is not related to park size.

We observed a wide variety of activities at a number of parks, like Marine Park, Bayswater, Springfield, and Plumb Beach (Figure 11). These included ten identified categories, along with a designated "Other Activity" category:

- Bicycling, Jogging / Running
- Walking / Dog Walking
- Sports
- Educational Group / Tour
- Nature Recreation

- Stewardship
- Sitting / Resting / Standing
- Socializing in Place
- Working
- Other Activity

Observed activities in the Other Activity category include, but are not limited to: dirt bikes, motorized scooters, jet skis and boats, roller blading, praying, gathering bottles from a dumpster, and releasing turtle with family.

Parks in the study area have different levels and types of programming (see Table 1). Marine Park is relatively large while Plumb Beach is relatively small, so activity diversity is not explained by park size alone. Sometimes, number of activities was due to the diversity of land uses in the park. For example, Brant Point Wildlife Sanctuary had fewer observed activities, but this was likely because it does not contain playgrounds or athletic fields, as the site is entirely a wetland waterfront area. In contrast, Plumb Beach contains beach, grass, shrubs, trees, bike paths and trails in a relatively small area. This confluence of human and biological diversity supports activities ranging from dog-walking to digging for clams, from kayaking in the water to watching the waves from a wheelchair.

> "Interaction with lady who used the park as a means to practice sun-gazing meditation- 'as black people, we need sunlight to be well!' A lot of 'healthy living' in the area- people exercising and meditating. Many activities- tennis, many men on basketball courts. Well used park."
>
> **From Brookville Park debrief notes**
>
> "The park is well used in the evening. Saw many people by the bridge over the water crabbing. Users are predominantly Black and Latino. Many people we interviewed said that they come here because there aren't any other nearby parks."
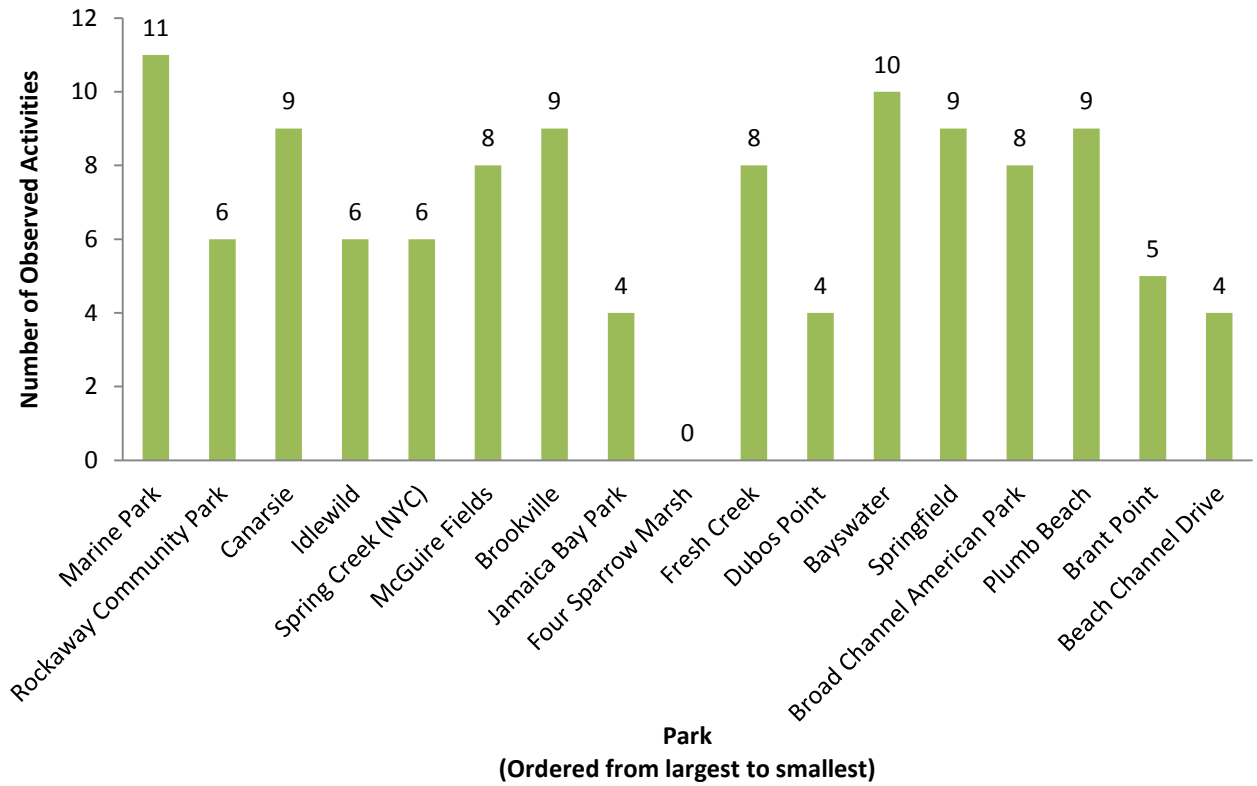>
> **From Bayswater Park debrief notes**

Figure 11. Number of observed activities by park

Park Meaning

Parks are a crucial form of 'nearby nature' that provide space for activities, recreation, socialization, and engagement with the environment and support social ties and place attachment.

We triangulated the quantitative results of human activities and signs of human use with qualitative information gleaned from interviews with park users. Interviewees were asked "Why do you come to this park?" Depending upon the respondent's interpretation, this open-ended question elicits information about both the behavior of park users as well as the motivations driving park use and the meaning of parks. Nine primary themes emerged from the responses to this question, each of which will be discussed in descending order of frequency mentioned. Each interview response could be coded with up to three distinct themes, so percentages total to greater than 100%.

Local

The primary reason that more than one-half of users (52.8%) gave for visiting parks is that the site is local or nearby. Park users mentioned that parks were "convenient" to access and use, and in some cases respondents said that they lived "across the street". While some users were visiting the park specifically to engage in a particular activity, others mentioned that the park served as a shortcut or pleasant walking route.

Amenities and park characteristics

Approximately one-fourth of respondents (23.6%) said that they visited the park because of its amenities. This includes physical park infrastructure, such as bathrooms, barbecue pits, buildings, community centers, play equipment, parking, paths, trails, sports and recreation facilities, and nature centers. It also includes characteristics of the park itself, particularly cleanliness, maintenance, and size—as well as mentions of the park maintenance staff themselves.

Nature-Outdoors

Another prevalent theme for 14.7% of respondents was the ability to connect with material qualities of nature and the outdoors. Of the numerous sub-themes identified, the most commonly referenced attributes of nature were: "fish", "shade", "views", "water", and "trees". Also mentioned were qualities of the air, including "fresh air", "breeze", and "cool". Other wildlife mentioned include crabs, birds, and eels. So, too, were other qualities of the coast identified, such as beaches, dunes, and salt marsh. Others simply said that they came to the park to experience the beauty of nature.

Refuge

Similar in frequency to the previous category, 13.7% of respondents identified the ways in which the park serves as a site of refuge. Interviewees sought out green space in order to get away from the crowds, sounds, and traffic of New York City. In particular, they sought out the sense of isolation (e.g. "to get away from crowds") and peace and quiet that they could find in parks. Words such as "calm", "peace", "relax", "safe", "serene", "solace", "solitude", and "tranquil" were commonly invoked. Interviewees also mentioned that parks can be a place to cultivate their personal health—in the face of physical ailments (e.g. asthma), mental stressors (e.g. workplace stress), and social pressures (e.g. negative peer groups).

Enjoyment

A number of respondents (9.9%) described the general enjoyment that they get out from visiting the parks. Frequently, interviewees said that they enjoyed the beauty of parks, or simply used words about their feelings about the site such as "like" and "love". Others described sites as "nice", "easy", "pleasant", or "great".

Activity

Although a prior, separate question asked interviewees "What are you doing in the park today?" some respondents (6.1%) chose to answer the question about why they come by again discussing the activities with which they were engaging. This suggests that urban parks are valued as spaces that allow for certain types of outdoor activities, including exercise, sports, walking, and bicycling. Some respondents engaged in sports mentioned that certain park sites were selected by leagues and teams. Parks also foster nature-based activities including stewardship and nature recreation.

Place attachment

While less common in terms of frequency, 5% of interviewees offered responses that indicated a deep level of place attachment to parks. These park users described long-lasting ties to the sites, with some visiting the same parks for decades. People used language such as "this is our home", "this place is my roots", "I've been coming for a long time", "it's been my favorite place since I was a kid", and "I grew up coming to this park". As a result, many of these park users had finely honed local ecological knowledge of sites as well as deep historical understanding of the transformations that had occurred in sites. Users offered historical accounts, such as stories of parks that transformed from vacant lots to programmed sites.

Sociability and Social ties

The final two thematic codes are distinct but related. Some respondents (4.5%) offered reasons for visiting the park that centered on the site as a place that supports sociability. Interviewees discussed visiting parks in order to socialize with friends, family, and the broader community. Other respondents (4.2%) described the social ties that they have to a park. This includes having family or friends who live nearby to the park or who referred the user to the park. Conceptually, these social ties have some overlap with the notion of place attachment. We coded responses as 'place attachment' if they specifically referenced an attachment that had developed over time to the site; and we coded them as social ties if someone identified having a social link to the park but did not specifically discuss this as a long-lasting, personal attachment to place.

Stewardship

The majority of adult park users do not participate in formal environmental stewardship groups, but information about other forms of engagement and barriers to stewardship provides insight on potential for increasing stewardship.

In addition to park use and meaning, we also examined environmental stewardship, finding 14% of interviewees participated in stewardship organizations, while 76% do not (Figure 12). Also, 9% of respondents pointed to other ways that they engage in environmental stewardship, including work (n=9), self-organized stewardship at home or in a park (n=16), and other pro-environmental attitudes and behaviors (n=10), including recycling, responsible consumption, and political advocacy (Table 7). The primary barrier to stewardship was time (n = 8), some interviewees mentioned a desire to participate (n = 11), but did not identify a specific barrier, and some mentioned other, unique responses (n=5). Those that are engaged participate in 49 different stewardship organizations. A wide variety of stewardship groups were involved, including the following (bolded groups mentioned multiple times):

- **Eastern Queens Alliances**
- **Green Peace**
- **Idlewild Environmental Education Center**
- **Marine Park Association**
- **MillionTreesNYC**
- **NYC Audubon**
- **NYC Parks Department**
- **Queens Hall of Science**
- **The Nature Conservancy**
- **Wildlife Conservation Society**
- **World Wildlife Fund**
- Act Now Vote
- American Littoral Society
- Bay Rats
- Bergen Beach Youth Association
- Bocce Club
- Boy Scouts
- Bronx River Alliance
- Brookville Tennis Club
- Canarsie Community of Tennis Association
- Carmine Carrol Community Center
- Church of Jesus Christ of Latter Day Saints
- Citizens for a Better Life
- Environment Global Warming @ MS 31

- Environment Science Learning Center
- Environmental Work Group
- Forest Hills Little League
- Friends of Prospect Park
- Friends of Springfield Park
- Gerritsen Beach Cares
- Green City Force
- Knights of Columbus
- Littoral Society
- Long Island Bass Masters Association
- Millennium
- Mill Basin Civic Association
- National Black NBA
- Parks Department
- Police Athletic League
- Project Management Institute
- Rosedale Center
- Salt Marsh Alliance
- Salt Marsh Nature Center
- Sierra Club
- Suburbia Cricket Club
- Transportation Alternatives
- WPET
- Youth Basketball Empowerment
- Zoo

Mirroring the patterns seen in stewardship citywide (see Fisher et al 2012), we see that environmental engagement is often nested within other community and quality-of-life issues. Groups range from local civic associations, to recreational and sports clubs, to groups focused on youth or seniors. In some cases, respondents did identify specifically environmental groups, including both local, hands-on stewardship groups as well as national, membership-based organizations.

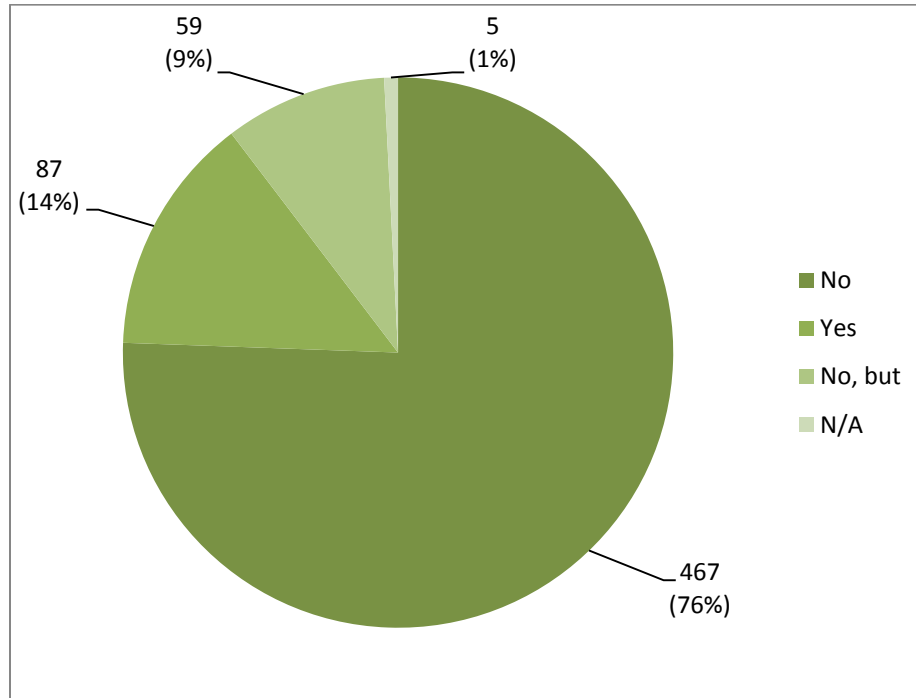**Figure 12. Are you involved in any groups that help take care of the environment?**

Table 7. Other forms of stewardship and barriers to stewardship identified by interview respondents

How else involved	Number of Respondents
Self-led stewardship	16
Would like to	11
Pro-environmental belief or action	10
Work	9
Temporal	8
Other form of civic engagement	5
Total	**59**

"In the dock area by the water there were a few people fishing. One mixed race family (mother was White, father was Caribbean) with three young children fishing and crabbing. The parents spoke about how they wished they would have permit fees for fishing again so that there would be more funds to preserve and protect the waters. They love the park and say that it's a gem. They live in the NYCHA apt across the street and come to the dock almost every day staying sometimes to 2-3am and say that they feel safe here. They say that one of the younger kids came to have parties and drink here, lighting the dock on fire and leaving a mess which upsets them. They make sure to clean the dock when they arrive so that their children are safe and clean it before they leave as well."

From Rockaway Community Park debrief notes

Sociability

People use parks to socialize.

This mixed methodology also draws attention to the role of parks as thoroughly social spaces that support a range of social relations leading to strengthening social cohesion. The data demonstrate the pervasiveness of social activities in which park users engage, the ways in which these activities create patterns of use at gathering spaces (e.g. fire pits, improvised sitting places), and ways in which social ties and sociability of the space motivate people to visit particular park sites. It is clear that these types of public and shared spaces are critical to the formation of social trust and neighborhood efficacy – much of which is currently discussed as highly desirable in terms of cultivating a more resilient city. Many of the parks had a large number of social groups and heavily observed socializing. For example, Marine Park, Canarsie Park, and Bayswater Park are highly sociable sites (Figures 13, 14). Although smaller than Marine Park and Canarsie Park, Bayswater Park was noted to have an incredible diversity of social activities taking place in the park, including cook outs, block parties, an MTV film event, a community health fair, and countless sports games. In this way, these sites become social nodes in a network of park space. Notably, those parks with less diverse activities had less socializing occurring (Figure 14).

Figure 13. Social groups in Jamaica Bay area parks
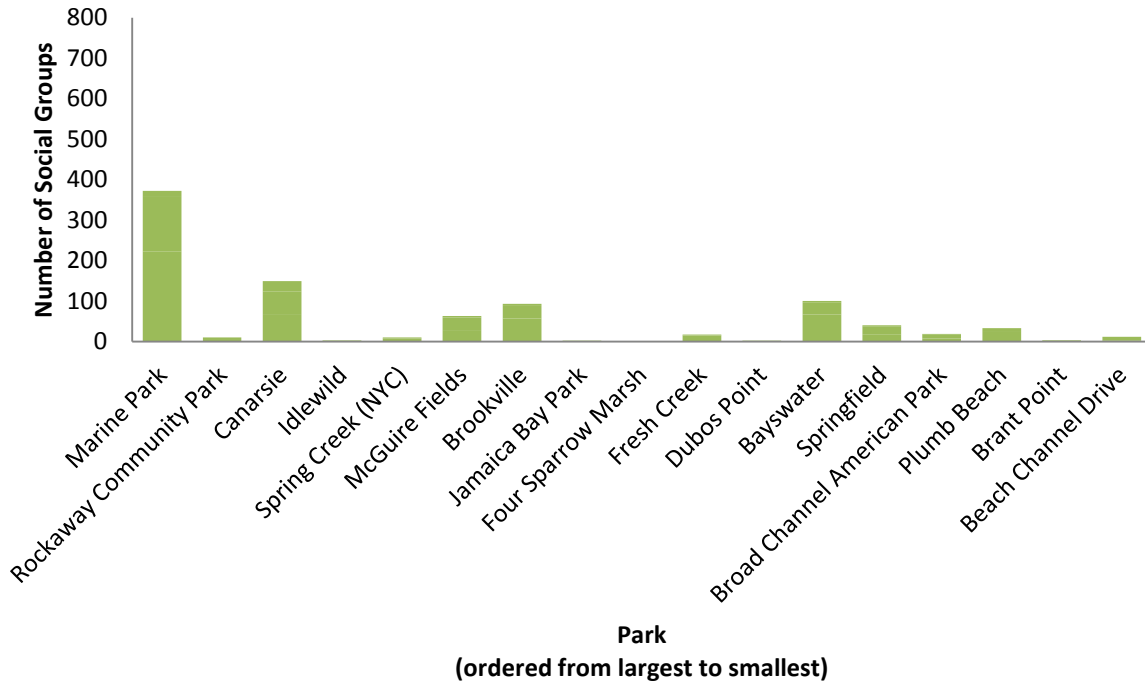
Figure 14. Number of social groups by park.

Where there are dogs, there are people interacting.

Observing those parks with large numbers of dogs (Figure 15, 16), we also see higher levels of social groups (Figure 12).
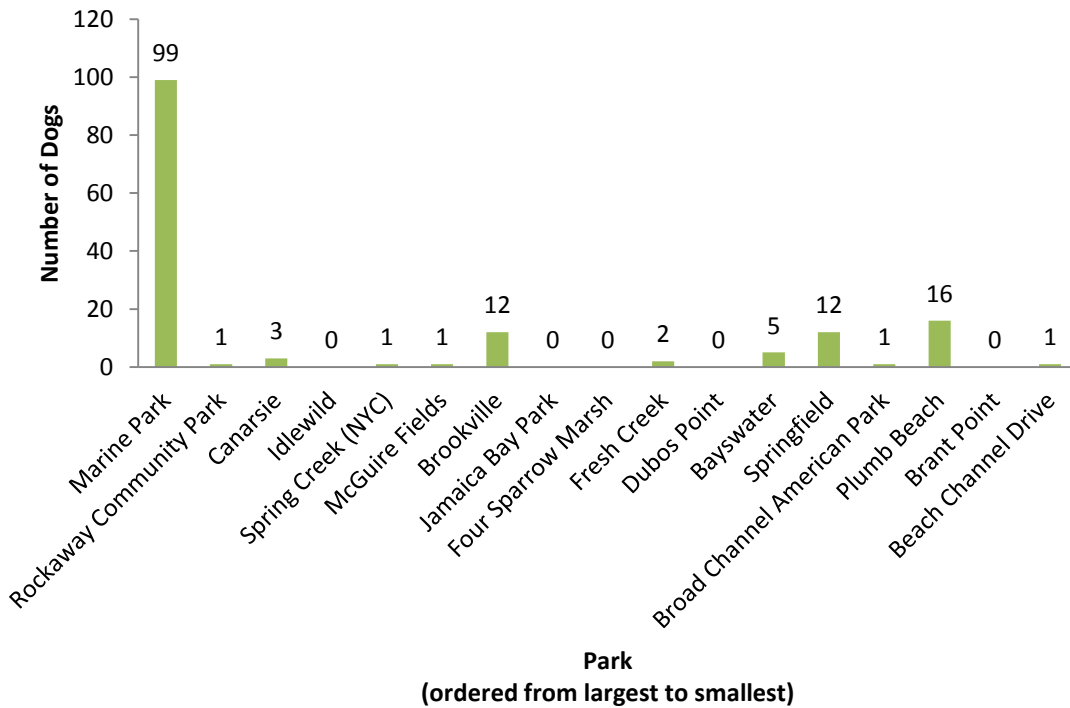
Figure 15. Number of dogs observed per park
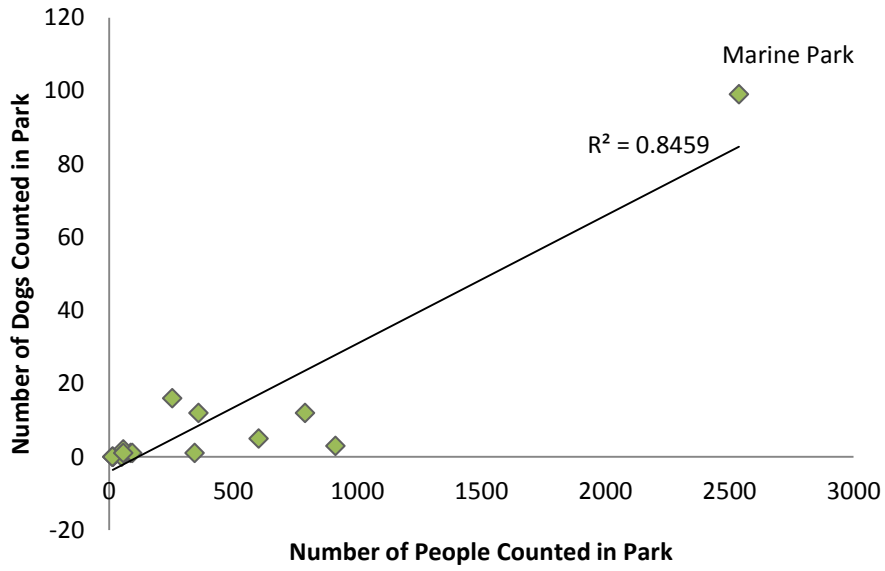
Figure 16. Relationship between dogs and number of people, by park[2]

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[2] With its large numbers of both dogs and people, Marine Park dramatically affects the fitted regression line in Figure 16. While Marine Park is not an outlier in the NYC Parks system, removing it from this dataset drops the R^2 value from 0.8459 to 0.0423.

Perceptions of and Interactions with Parkland Post-Hurricane Sandy

Although relatively few park users commented independently on Hurricane Sandy, those that did discussed the way in which parks and neighborhood residents were affected by the event.

The primary focus of this study is on the use, value, and meaning of parkland. Because of the Jamaica Bay setting of the 2013 pilot year, a secondary research question examines perceptions of and interactions with parkland post-Hurricane Sandy. We did not seek to lead park users to discuss the Hurricane, but rather wanted to see if this would emerge as a key theme related to park use and social meaning. Therefore, rather than directly include questions about Sandy in our interview protocol (Appendix C), we allowed references to emerge independently through interviewees' responses and comments to our field team.

In total, interviewees made 22 references of any kind to the Hurricane (3.6% of respondents), making the Sandy theme less prevalent than the other themes related to park meaning discussed above. Nonetheless, the fact that interviewees were not prompted to comment on Sandy but still independently identified the issue as relating to their use of parks shows that the issue was salient to some park users.

Comments about Hurricane Sandy included several different sub-themes:

- *Environmental and ecological impact of Sandy on the park* (including flooding, debris accumulation, damage to grass, downed trees, changes in water quality)

- *Impact of Sandy on park amenities and infrastructure*
    - Positive: investments made in the park post-Sandy (e.g. more swings put in place)
    - Negative: damages, need for park improvement post-Sandy (e.g. damaged playgrounds require repair)

- *Impact of Sandy on the surrounding neighborhood* (damage to homes and property, need for recovery and rebuilding and protective infrastructure, some people selling homes and leaving neighborhoods)

- *Participation in volunteerism post-Sandy* (helping neighbors rebuild homes, helping clean up the park, willingness to engage in stewardship)

Next Steps

This information will be used in conjunction with other data sets, particularly the ecological attributes and values being assessed by our colleagues at the Natural Areas Conservancy. In 2014, we modified our social assessment methods slightly as we extended this assessment citywide. Changes include tracking all protocols by zone (interview, signs, and activities), not just signs and activities. We also added a question about natural area visitation, to complement assessment work being conducted by the Natural Areas Conservancy.

We also have focused on a single park, In wood Hill Park, for a more in-depth assessment. Here, we will replicate this social assessment method across all four seasons to understand whether park use and meaning vary seasonally. We also modified the interview protocol slightly to understand the modes of transportation used to arrive at the park. Anecdotally, Inwood Hill Park is thought of as "Manhattan's Forest" and we hope to capture relationships between meaning and park access through this addition to the protocol. Additional efforts may focus on mapping specific sites of social meaning, to a finer grain than the zones used here, along with key informant interviews and community meetings, in order to inform forestry management aspects of the park.

Other analyses planned for citywide social assessment data are to 1) compare and connect the findings on use and social meaning to the literature on socio-cultural ecosystem services; 2) further analyze stewardship engagement and potential, including comparing stewardship organizations identified by interviewees against the existing STEW-MAP inventory of environmental stewardship organizations in the NYC area; 3) further analyze sacred aspects of park use and meaning; and 4) examine which NPS-managed lands are being visited by NYC Parks visitors.

Conclusion

Importance of Considering the Social

Urban parks are more than worthy of their place alongside the great public lands--the forests, grasslands, mountains, and prairies–of the United States. For these urban places serve as an everyday resource in which people can exercise, socialize, reflect, and commune with the natural world. In this social assessment we found an abiding devotion to local parks. And in many instances, we found that park users have a deep local, and often ecological, knowledge of these spaces. Most park users visit a variety of sites. This finding inspires us to liken humans to the birds and bees, as we too have the capacity to connect to a much larger ecological system. In this case, people are spreading information via their environmental attitudes, perceptions, knowledge, and behaviors.

It is critical that land managers and decision-makers continue to systematically understand human behavior and social meaning in conjunction with park management. Management schemes that prioritize only the biophysical will simply not be sustainable and may even be fraught with controversy. In addition, there will be a missed opportunity to cultivate the type of civic stewardship that can extend beyond the park maintenance worker and the park budget. History reminds us that we will not respect or conserve what we do not value—or do not love. 'Love' may be an unconventional word to use in a government report, however, it was

repeatedly used by park users as they described their experiences or reflected on why we found them on a hot summer day in a New York City park.

Ultimately, it is people who will actively and purposively sustain and maintain urban green spaces now and in the future. This does not mean that we should construct parking lots beside precious urban wetlands or cut trails through every forested track of parkland. What we are suggesting here is that we consider the social. In so doing, we can devise management practices, park designs, and programming across a system of parkland that takes into account social and ecological needs. Therefore, our goal should not be to balance the social and the biophysical but to integrate the two as part of a shared system. Perhaps most importantly, we need to view these parks through a new lens that reflects the ecological value as well as the psycho-social-spiritual aspects of urban natural areas.

With this document, we hope to inspire the types of questions that will help us continue along a trajectory of innovative park programming, design, and adaptive management. For example: how might we strengthen the feeling of tranquility in our densely populated urban parks? How are these areas meeting the needs of a diverse population and inclusion for all? We expect that program managers will be able to use these data to develop more integrated prioritization schemes that plan for a highly dense and dynamic set of users as well as special and unique conservation areas. Finally, we hope managers, decision-makers, and researchers draw upon these data and continue to raise questions aimed at improving ecological health and human well-being in and around urban parkland.

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Appendix A: Park Interior Protocol

PARKS OBSERVATION

Team Name:		Date (MM/DD/YYYY):	Start Time:	Stop Time:	First Photo #:
Location ID:	Starting Intersection:		Weather Temperature:		Last Photo #:

DIRECT HUMAN OBSERVATION	# Kids (<18)	# Adults (18-65)	# Seniors (>65)
Sports (soccer, tennis, cricket, baseball, volleyball, football, Frisbee, playground use, etc.)			
Jogging / Running			
Nature recreation (birding, launching or landing boat, fishing, etc.)			
Bicycling			
Walking / Dog Walking			
Socializing in Place (people talking, barbecuing, party, in groups)			
Educational Group / Tour (remember primary purpose, note the activity - count each individual)			
Working (parks maintenance, vendor, utility, repair, building, re-building)			
Plant collection / Foraging / Gathering			
Personal Property Maintenance (home repair/painting, washing car, car/bike maintenance,)			
Stewardship (gardening, tree care, weeding, trash removal, watering, volunteers in parks)			
Sitting / Resting / Standing / Waiting / Keeping Watch (alone, not socializing)			
Other Activity (homeless person sleeping, musician on street)			
Encounter with Resident: positive (including in cars and in homes)			
Encounter with Resident: negative (including in cars and in homes)			

SOCIAL OBSERVATION	
# of pairs	
# of small groups (3-10)	
# of large groups (10+)	
# of dogs	

USDA Forest Service   Northern Research Station   NYC Urban Field Station

PARKS OBSERVATION

Name Team:	Date (MM/DD/YYYY):	Location ID:

FIELD NOTES

General Park Observations:

Zone Specific Observations:

Zone: Zone Overview Photo #:	
Zone: Zone Overview Photo #:	
Zone: Zone Overview Photo #:	
Zone: Zone Overview Photo #:	
Zone: Zone Overview Photo #:	

USDA Forest Service   Northern Research Station   NYC Urban Field Station

PARKS OBSERVATION

Name Team:	Date (MM/DD/YYYY):	Location ID:

ACTIVITY OBSERVATIONS

Zone: Photo #	**Signs of Activity** ☐ Trails ☐ Encampment/Sleeping Area ☐ Sitting Places & Dinning ☐ Fire Pit ☐ Memorial/Shrine ☐ OTHER / exceptional: (note)	**Signs of Neglect/Decay/Damage** ☐ Illegal Dumping ☐ Damaged/Vandalized Building **Signage/Writing/Art** ☐ Graffiti, Art, Murals ☐ Community Bulletin Boards ☐ Other Signs (NOT parks signs) **Signs of Environmental Stewardship** ☐ Garden in Park ☐ Bird Feeder/Bird Box/Birdbath	**Field Notes**
Zone: Photo #	**Signs of Activity** ☐ Trails ☐ Encampment/Sleeping Area ☐ Sitting Places & Dinning ☐ Fire Pit ☐ Memorial/Shrine ☐ OTHER / exceptional: (note)	**Signs of Neglect/Decay/Damage** ☐ Illegal Dumping ☐ Damaged/Vandalized Building **Signage/Writing/Art** ☐ Graffiti, Art, Murals ☐ Community Bulletin Boards ☐ Other Signs (NOT parks signs) **Signs of Environmental Stewardship** ☐ Garden in Park ☐ Bird Feeder/Bird Box/Birdbath	**Field Notes**
Zone: Photo #	**Signs of Activity** ☐ Trails ☐ Encampment/Sleeping Area ☐ Sitting Places & Dinning ☐ Fire Pit ☐ Memorial/Shrine ☐ OTHER / exceptional: (note)	**Signs of Neglect/Decay/Damage** ☐ Illegal Dumping ☐ Damaged/Vandalized Building **Signage/Writing/Art** ☐ Graffiti, Art, Murals ☐ Community Bulletin Boards ☐ Other Signs (NOT parks signs) **Signs of Environmental Stewardship** ☐ Garden in Park ☐ Bird Feeder/Bird Box/Birdbath	**Field Notes**
Zone: Photo #	**Signs of Activity** ☐ Trails ☐ Encampment/Sleeping Area ☐ Sitting Places & Dinning ☐ Fire Pit ☐ Memorial/Shrine ☐ OTHER / exceptional: (note)	**Signs of Neglect/Decay/Damage** ☐ Illegal Dumping ☐ Damaged/Vandalized Building **Signage/Writing/Art** ☐ Graffiti, Art, Murals ☐ Community Bulletin Boards ☐ Other Signs (NOT parks signs) **Signs of Environmental Stewardship** ☐ Garden in Park ☐ Bird Feeder/Bird Box/Birdbath	**Field Notes**
Zone: Photo #	**Signs of Activity** ☐ Trails ☐ Encampment/Sleeping Area ☐ Sitting Places & Dinning ☐ Fire Pit ☐ Memorial/Shrine ☐ OTHER / exceptional: (note)	**Signs of Neglect/Decay/Damage** ☐ Illegal Dumping ☐ Damaged/Vandalized Building **Signage/Writing/Art** ☐ Graffiti, Art, Murals ☐ Community Bulletin Boards ☐ Other Signs (NOT parks signs) **Signs of Environmental Stewardship** ☐ Garden in Park ☐ Bird Feeder/Bird Box/Birdbath	**Field Notes**

USDA Forest Service   Northern Research Station   NYC Urban Field Station

Appendix B: Park Edge Protocol

EDGE OBSERVATION: ☐ Park Side ☐ Neighborhood Side

Team Name:		Date (MM/DD/YYYY):	Start Time:	Stop Time:	First Photo #:
Location ID:	Starting Intersection:		Weather Temperature:		Last Photo #:

DIRECT HUMAN OBSERVATION	# Kids (<18)	# Adults (18-65)	# Seniors (>65)
Sports (soccer, tennis, cricket, baseball, volleyball, football, Frisbee, playground use, etc.)			
Jogging / Running			
Nature recreation (birding, launching or landing boat, fishing, etc.)			
Bicycling			
Walking / Dog Walking			
Socializing in Place (people talking, barbecuing, party, in groups)			
Educational Group / Tour (remember primary purpose, note the activity - count each individual)			
Working (parks maintenance, vendor, utility, repair, building, re-building)			
Plant collection / Foraging / Gathering			
Personal Property Maintenance (home repair/painting, washing car, car/bike maintenance,)			
Stewardship (gardening, tree care, weeding, trash removal, watering, volunteers in parks)			
Sitting / Resting / Standing / Waiting / Keeping Watch (alone, not socializing)			
Other Activity (homeless person sleeping, musician on street)			
Encounter with Resident: positive (including in cars and in homes)			
Encounter with Resident: negative (including in cars and in homes)			

SOCIAL OBSERVATION	
# of pairs	
# of small groups (3-10)	
# of large groups (10+)	
# of dogs	
Other Field Notes:	

EDGE OBSERVATION: ☐ Park Side   ☐ Neighborhood Side

Name Team:	Date (MM/DD/YYYY):	Location ID Street Intersection:

SIGNS OF ACTIVITY	**Park Access Points** 📷 (formal & informal entrances)	
	Trails (cut-throughs, walking trails, desire lines, bike trails)	
	Sitting Places & Dining (bench, chair, gazebo, chair on porch, sidewalk cafe, grill)	
	Sporting / Play Equipment (basketball hoop, toys)	
	Bike (NOT in use & NOT a ghost bike)	
	Buildings / Lots with Signs of Repair / Construction (including lots repurposed as staging ground for repair)	
SIGNS OF NEGLECT, DECAY, DAMAGE	**Damaged Property** (rusty/broken fence, structural or signage damage – NOT graffiti)	
	Abandoned Car / Bike (white ghost bikes are memorials)	
	Damaged / Uneven Sidewalks (tripping hazard – note incidence per zone)	
	Illegal Dumping (NOT bagged trash or litter)	
	Standing Dead Street Tree / Empty Tree Pit	
	Vacant Building	
	Vacant Lot (NOT a garden)	
SIGNAGE / WRITING / ART	**Graffiti, Art, Murals** 📷 (hand written/painted messages/signs – do NOT photo small, illegible tags)	
	Community Bulletin Boards / Institutional Signs 📷 (i.e. church marquees – NOT commercial)	
	Other Signs, Flyers & Stickers 📷 (family & foreign language signs, but NOT city street signs)	
	No Parking signs	
	"Keep Out" Signs (i.e. ADT, Beware of Dog, No Trespassing, No Soliciting)	
	National Flags (US & other countries on buildings and parked cars)	
	Decorations on Buildings or in Gardens (lights, wind chimes, gnomes, non-national flags, etc.)	
SIGNS OF ENVIRONMENTAL STEWARDSHIP	**Memorial / Shrine / Sacred Symbol** 📷 (colored ribbons, RIP, "in memory of," stuffed animals)	
	Stewarded Street Tree (improved tree pit, tree guard, mulch, rocks, flowers, signage)	
	Streetscape Garden (planter, flower box in public right of way – NOT in tree pit)	
	Bird Feeder / Birdbath / Bird Box / Pond	
	HOUSE with Lawn – Actively Stewarded, any sign of care (i.e. mowed lawns, or tilled/seeded soil)	
	HOUSE with Lawn – Minimally Managed (no ongoing care, dry/barren lawn, or weeds)	
	HOUSE with Garden – Actively Stewarded, any sign of care (i.e. trimmed shrubs, annuals, or single tended potted plant)	
	HOUSE with Garden – Minimally Managed (no ongoing care, empty planters, dead shrubs, overgrown, weeds)	
	APARTMENT with Lawn – Actively Stewarded, any sign of care (i.e. mowed lawns, or tilled/seeded soil)	
	APARTMENT with Lawn – Minimally Managed (no ongoing care, dry/barren lawn, or weeds)	
	APARTMENT with Garden – Actively Stewarded, any sign of care (i.e. trimmed shrubs, annuals, or single tended potted plant)	
	APARTMENT with Garden – Minimally Managed (no ongoing care, empty planters, dead shrubs, overgrown, weeds)	
	Community Garden	
	Other Lawn (in front of non-residential structure, like a church or school)	
	Other Garden (in front of non-residential structure, like a church or school)	

EDGE OBSERVATION: ☐ Park Side ☐ Neighborhood Side

Name Team:	Date (MM/DD/YYYY):	Location ID Street Intersection:

FIELD NOTES – NEIGHBORHOOD SIDE

Natural Areas Edge Field Notes
1. Take orienting photo at each corner and as you cross zones.
2. Debrief with general observations at the end of each zone.
3. Conduct two separate pass throughs (one on the park side & one on the neighborhood side)

	Field Notes on Neighborhood Side of Street (note general character – vibrant business district, residential with stewarded lawns, murals, flags; institutions; industrial areas excessive litter – **overall** impression of people's activities; NOTE photo number and describe exceptional photos taken in field notes).		
Street: Zone: Corner photo #:		Street: Zone: Corner photo #:	
Street: Zone: Corner photo #:		Street: Zone: Corner photo #:	
Street: Zone: Corner photo #:		Street: Zone: Corner photo #:	
Street: Zone: Corner photo #:		Street: Zone: Corner photo #:	
Street: Zone: Corner photo #:		Street: Zone: Corner photo #:	
Street: Zone: Corner photo #:		Street: Zone: Corner photo #:	

Appendix C: Interview Protocol

INTERVIEW

TEAM NAME:	DATE:	PARK NAME:

Approximate age: ☐18-65 ☐>65	Gender: ☐ Male ☐ Female

What are you doing in the park today?

And why do you choose to come here?

How often do you visit the park you are in today?

☐ Daily ☐ Weekly ☐ Monthly ☐ Occasionally ☐ Rarely

How far did you travel to get to this park?

☐ Less than 5 blocks ☐ 6-10 blocks ☐ 11-20 blocks ☐ Over 20 blocks

Where else do you like to go in the outdoors?

Are you involved in any groups that help take care of the environment? ☐Yes ☐No
If yes, which group(s):

FIELD NOTES:

Approximate age: ☐18-65 ☐>65	Gender: ☐ Male ☐ Female

What are you doing in the park today?

And why do you choose to come here?

How often do you visit the park you are in today?

☐ Daily ☐ Weekly ☐ Monthly ☐ Occasionally ☐ Rarely

How far did you travel to get to this park?

☐ Less than 5 blocks ☐ 6-10 blocks ☐ 11-20 blocks ☐ Over 20 blocks

Where else do you like to go in the outdoors?

Are you involved in any groups that help take care of the environment? ☐Yes ☐No
If yes, which group(s):

FIELD NOTES:

Appendix D: Detailed Methods and Definitions

I. **Defining the landscape**

   The NYC Department of Parks & Recreation (NYC Parks) manages approximately 30,000 acres of land across the five boroughs of New York City. Approximately one-third of these lands are designated "Natural Areas" and include forests, meadows, fresh- and saltwater wetlands. These natural areas are managed for multiple values other than active recreation, such as: biodiversity, ecosystem services, water control, wildlife habitat, etc.

II. **Site visits:**

   Each site is visited three times during the summer season: 1) during a weekday (between 8am – 4pm); 2) on a weekday evening (after 4pm); 3) on a weekend between the hours of 8am and 8pm.

   On the first visit, all protocols (direct human observation, signs of human use, edge observations, and interviews) and all parts of park (interior and edges) are executed. Subsequent visits (weekday evening and weekend day) entail a more rapid assessment—direct human observations and interviews within the park interior only. **Table 1** summarizes which protocol to use when and where.

Table 1. Summary of Site Visits

	Weekday	Evening	Weekend
Interior	Direct human observations Interviews Signs of human use	Direct human observations Interviews	Direct human observations Interviews
Edge	Direct human observations Edge observations*	--	--

*Note: In 2013, the signs of human use protocol was used for both the interior and the edge.

   Inclement weather: Researchers may work in light rain but should call off work in cases of heavy rain that precludes note-taking, and intense and/or electrical storms. Research may also be aborted under conditions of extreme heat.

III. **Zone delineation:**

   Each named park property is divided into zones, which define sections of the park that share prominent land cover features, infrastructure, habitat type, and / or parks

designation. This zone delineation may be compared to the delineation of stands or management units used in traditional forestry, in which portions of the forest are identified as units according to certain degree coherence across key characteristics. In this assessment, key characteristics and features to consider are: parks infrastructure, vegetation cover type, and major boundaries (roads, waterways, trails, etc.) that fragment the park into smaller units. For example, active recreation facilities are separated from open meadow / dog run areas, which are in turn be separated from wetlands and woodlands. As a priority consideration, these zones should follow exactly the existing NYC Department of Parks & Recreation's boundaries for Forever Wild Natural Area Preserves and Forever Wild Natural Areas. Other sections within the park are be divided by triangulating aerial photography, NYC Parks GIS data layers showing park infrastructure, and on-the-ground verification.

When a single homogenous zone (such as a forested area within a park) is very large, it may be subdivided further into more zones to facilitate the research process. The field researchers can assess the park in smaller spatial units and later aggregate data that applies to these smaller, contiguous, similar zones. This is particularly important as often field work is interrupted by darkness or changes in weather; and smaller spatial units allow researchers to more easily know document what ground has been covered and what ground remains.

While in the field, researchers should capture all formal and informal names / designations given to particular sites and areas, attending both to official park signs and to language used by community members / park users. Record these on the map and in field notes for appropriate zones.

IV.   **Park interior**

The park interior is assessed on all three visits to the site. In some cases the interior is clearly defined by a guardrail, a fence, a wall, or a clear break from the sidewalk. Other park sites may abut directly to the road, with no barrier and no sidewalk (there may be a social trail / desire line running along the edge). In this case, researchers must make a note of the character of the edge and make the judgment of what constitutes interior vs. edge.

V.   **Park edge**

The park edge is the interface between the park interior and the rest of the city. In some cases, this is clearly defined by a wall that separates the sidewalk (right-of-way) from a park meadow. In other cases, the boundary is less apparent (for example, unmown meadow that persists up to a sidewalk), and researchers have to make a note of the character of the edge and move along the adjacent feature (road, sidewalk, fence,

guardrail, open boundary) considering a narrow buffer as the boundary / edge space. Pay particular attention to desire lines and informal entry points.

While researchers do not physically cross the street, they should visually scan across the street and make notes about: built form, neighborhood character, land use, stewardship evidence and stewardship hubs, community gardens, vacancy, flags, home aesthetics, human activity patterns, murals, business district features, etc. Direct human observations are made on both the park side and the community across the street. General edge observations and direct human observations along the edge are divided up into the same zones as the parks interior.

Exception: For larger parks that are transected by large busy roads with high levels of human activity (e.g., Woodhaven Blvd, which goes through Forest Park), the road is treated as a park edge. Edge observations and direct human observations are only made on one side of the street to avoid double counting.

VI.   **Moving through space in the park interior**

Within the park interior, research teams move through the park site zone by zone, sweeping across all passable and visible land. They make observations, conduct interviews, and record field notes that apply to the entirety of one zone before moving onto the next zone.

Where the entire zone is accessible and viewable, researchers should move through space and assess their immediate vicinity (within clear visibility lines), making every attempt not to double count humans or signs of human use. It helps to imagine moving with a bubble to capture everything that falls within that bubble, rather than casting your eyes far afield.

In portions of the park that are more densely vegetated or filled with other obstacles, researchers follow formal trails and informal desire lines that indicate human access of the space. They should also cast their gaze further afield to view portions of the park that they may not be able to access on foot. While bushwhacking and wading through marshlands is not required by the protocol, researchers should pursue all "social trails," holes in fences, and similar markings of human passage *to the extent that they feel comfortable and safe doing so*.

VII.   **Observing human activity**

The direct human observation protocol requires the researcher to keep a quantitative tally of all people observed within the park site. People are assessed for *what* they are doing, *where* they are observed (zone), and their *approximate age*. These counts total

all people observed in the site visit. Additionally, any encounters initiated by park users are counted, as are observations of social clustering (pairs, small groups, and large groups). Dogs are also counted as a part of the human activity observation protocol. Most activities are self-explanatory. Others are defined below.

Detailed notes and definitions:

- Researchers should make note of the dominant activity—a socializing worker is working. Answer the question: 'what is the primary reason that the person is in the park today?' and count the activity accordingly.
    - If someone is seated with a bike, they are resting. We are observing what people are doing, not interpreting signs (they may have simply used the bike for commute).
    - A person in a basketball jersey and seated on the sidelines with the team is playing basketball (sports).
- When **educational groups** are encountered in parks (and they are doing stewardship or birding) they are counted as educational groups only. These are groups of people who are primarily in the park to learn. Where possible, a field note is added to indicate what they are doing.
- When school groups or camp groups are seen on recess/playing, they are **not** be tallied as an Educational Group; rather for what they are doing, such as **Sports and Recreation**. They are not participating in an educational group/tour.
- Children on scooters and people on rollerblades or skateboards also fall under **Sports and Recreation.**
- **Nature recreation** is defined as any recreation that falls outside of formal parks infrastructure and engages with natural elements in the park – wildlife, plant life, water, soil, trees, twigs, shells, etc. Examples are included on the protocol.
- A note about kids at play: kids in free play, e.g., playing tag or hide-and-go-seek or imaginary games, are counted as **Socializing in Place. BUT**, when children are interacting with natural elements (e.g.: climbing trees, building forts with sticks, digging, collecting shells), they are counted in **Nature Recreation.**
- **Stewardship** is defined as any caring for the land, from litter removal, to infrastructure maintenance, to plant care. This category does not apply to the actions of NYC Parks employees (who are *working* if observed engaging in any of these activities).
- **Encounter with resident:** this observation is noted *in addition to* the primary activity observation. Thus, if a cyclist greets you in a friendly manner as she rides by, she must be recorded as *bicycling* and as and *encounter with resident (positive).*
- Similarly, **social observations** are made in addition to the primary activity observation. Ten people having a barbecue must be documented as ten individuals *socializing in place* and as a *single large group*.

- **A count of the number of dogs** is also part of the human observation protocol. This reflects the fact that dog walkers are using the park in a manner distinct from solo walkers. This variable helps elucidate a particular character / use / value of park sites.

VIII. Observing signs of human use

In observing *signs of human use,* researchers document evidence of human presence where the humans themselves are not observed in the act. **Within the park interior**, these signs of human use are recorded in a quantitative tally. Some key signs are also photographed (camera icon indicates which signs should **always** be photographed). **On the park edge**, signs of human use is captured qualitatively through field notes taken for each zone; and patterns, exceptions, and illustrative examples should be documented in photographs.

Most signs of human use are self-explanatory. Others are defined below:

- **Informal trails** are those carved by park users and not maintained or paved by NYC Parks.
- **Informal / Improvised Sitting Spaces** are those seats constructed / improvised by park users only and do not include official benches, bleachers, or seats.
- **Memorial / shrine / other sacred symbols** includes all materials of remembrance (ghost bikes, flowers, ribbons, memorializing signage, plaques, etc.,) as well as symbology from all religious and spiritual orders (crosses, Virgin Mary icons, star of David, menorahs, Buddhas, Taoist symbols, items from Hindu rituals, Santaria symbols, etc.)
- **Substantial dumping or debris** includes any large concentration of trash or debris but does not include garbage that has been bagged and appropriately placed for removal. Dumping and debris may be legal or illegal, and thus includes sites that NYC DPR is using for staging materials (large piles of bricks, gravel, old infrastructure, Hurricane Sandy debris etc.)
- **Graffiti, art, murals** includes all two- and three-dimensional art created in / on the landscape. These should be photographed in the park interiors **except in the case of small, illegible tags.**
- **Signage, flyers & stickers** does not include standard Parks signs or other official city signs.

IX. Interviews with park users

- This is a rapid interview conducted with a random sample of every third adult encountered in the park. Interviews are not conducted on the park edge or with minors under the age of 18.
- Researchers should not interrupt people if they are:
  - Sleeping,
  - Meditating,
  - Praying or involved in other religious ritual, or
  - Competing or involved in vigorous structured play (although it is fine to approach them if they are taking a break, and good to interview people on the sidelines to capture the sports related activities).
- Introduce yourself and the project, ask for a few moments to ask them a few questions. Explain that you are doing research working with the Parks Department to understand how people are using parks.
- If the individual refuses, please record this in the **Interview refusals** box on the General Park Observations Notes page.
- Be sure to distinguish between interviewees' language and your own thoughts / interpretations / observations.
- Whenever possible, debrief with your field partner after every interview to verify what you have captured
- If the person speaks another language in which you have language ability, feel free to conduct the research in that language – and note on the field notes. Be sure to include English translation in the write-up.

X.   Field notes – zone notes

Field notes capture the overall feeling of a zone / park site, as well as notable features, patterns, exceptions, and surprises**.** Field notes also document any notable conditions of the day or research process (holiday? Special event? Heat wave? Interruption to research?). These notes should be kept consistently as researchers move through space, and attended to at every transition between zones, between sites, and at the end of each work day. See debrief section for special considerations for taking qualitative field notes. Some additional considerations to note:

- Excessive notable litter (broken security glass, dog poop, etc.),
- Notable street tree damage,
- Shopping carts that may be related to homelessness, not dumping,
- Standing dead trees,
- Multipurpose activities/users- parks workers also stewarding,

- Resting in car near park notable-rest spot (e.g. cab drivers, ambulance drivers on break), or
- Languages, ethnicities, races, other groups represented or excluded from a site.

XI. Structured debrief – end of every site (and / or every day)

Site debrief at completion of each site (or at end of each day if a site takes several days to assess). Assign one person as scribe and capture the details of the discussion with specific language **(see example at end of document):**

- Quickly review all forms for completion – ensure that date and time and full header are complete for each form. Make sure counts are tallied and circled legibly.
- Gather and share general impressions / reflections on both the human and site characteristics of the site.
- Download camera memory cards each day to the field laptop, back up laptop files at end of each week using the external drive.
- What did we see? What patterns did we notice – what are people doing in the park, and where? What surprises / exceptions to those patterns? Hot spots? Dead zones?
- Who did we observe? What languages did we hear? Social clustering? Any people or groups of people you might have expected to see but didn't?
- The **race** question. We are not formally recording race or ethnicity of people we see; but we can use the debrief to capture the demographic nature of who's present and who's absent, and to make general comments about diversity, inclusion, exclusion, segregation of users and use types, etc.
- Any significant encounters with park users, in interviews or in spontaneous exchanges?
- Tally all interview refusals.

Appendix E: Checklist for Conducting Field Work

I. FIELDWORK

Before going out in the field:
- Orient yourself to your park by looking at it on google maps
- Make sure you have the PDF maps printed out for your park
- Create zones for your park area – with consensus from your group
  - Don't create zones that are too fine-grained. A handful of zones (2-6) per park is probably a good number.
  - Natural Areas are their own zone.
- Make sure you have a print out of **each** protocol for **each** zone
  - Interior protocol
  - Edge protocol
- Bring a big stack of interview forms
  - You will interview every third person you encounter in the park –**adults only**
- Bring a pencil (or a few)
- Bring a hard surface to write on
- Bring a digital camera – set to highest resolution
- Be prepared for inclement weather – dress appropriately for being outdoors: coat, hat, scarf, boots, etc. as needed

Divide your team of four into roles; plan to work as pairs:
- Interviewer
- Direct Human Observer
- Photographer
- Counting signs of human use

Develop a plan to cover space and time:
- Cover all of the park interior zones: remember to take orienting photo of each zone
- Cover the entire edge of the park (walking along the park side of the street only)
  - Remember to take orienting photo of each zone and street turn
- Make 3 visits to each park
  - Weekday daytime
  - Weekday evening
  - Weekend daytime

Once in the field:
- Be sure to fill out the top of every form completely – full team names, time of day, date, photo starting #, weather conditions, etc.
- Fill out all forms – especially field notes--completely and **legibly**
- At the end of the day, write your final count for each cell as a circled number
- Remember to debrief as a team at the end of your day, with someone responsible for taking down the longer debrief notes and typing these up in a word document

II. DATA MANAGEMENT

Develop a plan for data management
- Make sure you are keeping track of cameras and photo files – download and back up each day
- Keep track of all forms – organized by zone, park, and time of visit
- Keep track of all digital photos in files – organized by zone, park, and time of visit
- Share all final files in one folder by team

III. ANALYSIS AND REPORTING

Develop a plan for data analysis, reporting, and presentations, drawing upon
- Key impressions and debriefs
- Statistics
- Photographic data
- Maps