FINDING NATURE IN THE CITY:

A CASE STUDY OF ECOLOGICAL RESTORATION IN AN URBAN PARK

by

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Abstract

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This dissertation presents a case study of ecological restoration in an urban park, using a mixed-methods methodology that included a survey instrument, open-ended interviews, behavioral and trace observations, and modified grounded theory methodology for data analysis. The purpose of the study was to identify values that users of four ecologically restored areas of Chicago's Lincoln Park associated with their use of the park areas and to determine the extent to which they experienced contact with nature while visiting the areas.

The study was conducted within the framework of a post-occupancy evaluation (POE) of the restoration projects, the Lincoln Park Evaluation Study in the College of Architecture, Design and the Arts, University of Illinois at Chicago, which was commissioned by the U.S. Forest Service. The author, the principal investigator for the POE, developed a set of ten values or benefits associated with park use that were included in the survey instrument and informed the onsite, open-ended interviews with park users—beauty, solitude, tranquility, recreation, health, contact with nature, habitat preservation/restoration, community identity, public life, tourism, and other (to allow respondents to add their own values to the list).

The results of the study indicate that users valued contact with nature and habitat restoration most, followed closely by tranquility, solitude, and beauty, with health and recreation next and public life and community identity trailing all others. No new values were added. Data analysis suggested that respondents fell roughly into two camps, those who valued contact with

nature most and those who valued habitat restoration most. Respondents who selected tranquility, solitude, or beauty as important values viewed them as secondary to contact with nature or habitat restoration because the former would be unavailable without the latter. The study's results complicates the dichotomy between natural and built environments, as respondents praised the restored areas—arguably built environments—as refuges from the city. A theme that emerged from qualitative data analysis suggests that ecological restoration of urban parks might be related to *nature-identities*, emotional bonds with types of natural areas, calling for future research to determine the relationship between urban nature and urban residents' nature-identities.

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CHAPTER 1

INTRODUCTION

How do people who live in large urban areas experience nature? *Can* they experience nature? I have long believed that urban dwellers instinctively seek nature in the cityscape, in spite of the seemingly inevitable compromises they must accept, relishing even the smallest green space. I have also been long interested in exploring how city dwellers form relationships with nature with so few refuges from city life available. Most cities offer parks to their residents, but although city parks have for centuries provided urbanites with opportunities for relaxation and recreation, it is not clear whether users of these parks experience what it is like to be in nature writ large—most people likely associate the idea of being in nature with large rural or wilderness tracts, especially those that have gone relatively untouched by human activity.

Many cities have adopted new planning paradigms designed to minimize the effects of urban development on the natural environment, seeking to reduce energy consumption, pollution, and the loss of open spaces, providing what are known as ecosystem services (Bolund & Hunhammar, 1999). Within the broader environmental movement that was spawned in the 1970s, *ecological restoration*, which entails (roughly speaking) the return of natural areas that have been damaged or degraded by human activity to a prior state of ecological balance or health, has generated a rich and growing research literature. Here I focus on ecological restoration in urban parks, a practice that raises a host of questions because although such parks generally feature open spaces, vegetation, water features, and other emblems of nature, they are built environments. Is it possible to *create* an environment within the broader urban landscape that enables city residents to enjoy nature as those who visit state or national parks do?

A ‘laboratory’ for exploring these questions has been created recently in the city of Chicago, in its lakeshore-hugging Lincoln Park, four areas of which have undergone ecological restoration as part of a larger effort to rehabilitate the entire park after decades of neglect. These areas were originally designed as natural spaces but had suffered with the rest of the park from neglect and, in some cases, abuse. Having learned of their restoration in the late 1990s and early 2000s, I wondered whether Chicago residents who used the newly restored areas perceived them as opportunities to be in contact with nature. What drew them to the areas? What values would they associate with their experiences in the areas? How would using these areas affect their attitudes towards or conceptions of nature? This dissertation explores such questions by observing and interviewing park users in an attempt to understand the potential role of ecological restoration in urban planning as a function of its capacity to bring urban residents in closer contact with nature.

The research that informs the dissertation was incorporated into a study I conducted while I was the Design Research Coordinator of the City Design Center at the University of Illinois at Chicago: the Lincoln Park Evaluation Study in the College of Architecture and the Arts, UIC. The United States Forest Service of the Department of Agriculture came to the City Design Center for assistance in conducting a post-occupancy evaluation (POE) of four abovementioned areas of Lincoln Park that had recently undergone improvements as part of a broader effort to revitalize the park. Lincoln Park, which offers Chicago a wide range of amenities and activities, had indeed fallen into disrepair in the 1980s, as drug use, sexual behavior, and crime were discouraging local residents and tourists from using it. In 1989 the Chicago Park District and a coalition of local stakeholders, the Lincoln Park Steering Committee, launched an initiative to develop a plan to improve the park. In 1995, the Park

District and the Lincoln Park Steering Committee published the *Lincoln Park Framework Plan*, a comprehensive blueprint for addressing the myriad issues that had been identified as needing remediation.

The Forest Service facilitated subsequent efforts to address problems at four areas of Lincoln Park in particular, and this dissertation focuses on these four areas—known today as the Montrose Point Bird Sanctuary, the Bill Jarvis Bird Sanctuary, the Alfred Caldwell Lily Pool, and the North Pond Nature Sanctuary. Initially the Forest Service followed the process—through which a range of stakeholders participated in the planning, design, and implementation of improvements in the four areas—to understand and assess the role of public participation in these efforts, which were characterized as ecological restoration projects. I will explain what ecological restoration entails in Chapter 2; here I point out that my interest in environmental psychology dovetailed with the Forest Service's continuing interest in these projects at Lincoln Park. As the Forest Service anticipated completion of the restoration work at the four areas, it sought also to assess the extent to which the restorations achieved what stakeholders hoped they would achieve and to determine whether the improvements were noticed and appreciated by park users. This brought the Forest Service to the City Design Center for assistance with the POE, for which I became the lead investigator.

What I learned about the four restoration projects and my study of the related literature dovetailed with my interest in understanding whether ecological restorations in urban parks provide park users with experiences that coincide with values that are typically associated with experiencing nature, and whether, in particular, users feel that being in restored areas truly does bring them closer to nature. This interest of mine was further stimulated by studies undertaken by Paul Gobster of the Forest Service who, in his own research that was parallel to but largely

independent of the Forest Service's interest in the outcomes of the restorations, had explored the values that users associate with the ecological restorations and especially the concepts or "visions" of nature that various features of the restorations represented to them (Gobster, 2001, 2002b; Gobster & Barro, 2000). Gobster's case studies of Montrose Point were particularly salient in this respect.

I was given permission by the Forest Service and the City Design Center (see Appendix A) to incorporate my own questions into the survey instrument that I developed for the POE and subsequently to use the data I collected for my own purposes in this dissertation. I was therefore able to collect data on the values park users associated with the ecological restorations and the extent to which they felt they were in contact with nature when using those areas. So the research on which this dissertation is based ran in parallel with the POE that I conducted on behalf of the Forest Service and the City Design Center to assess the success of the restoration projects in meeting the planning and design goals.

In the larger context of this research, environmental issues overlap with urban design issues. In particular, a study of ecological restoration in an urban context extends research on ecological restoration to a setting in which it represents a growing interest in 'greening' cities by reducing their carbon footprints, expanding their green spaces, and more generally improving their ecologies for human, animal, and plant life. Such projects raise issues in environmental philosophy, particularly concerning the abovementioned relationship between human beings and 'nature,' but also concerning the extent to which it is possible to 'restore' the ecology of an area that has been degraded by human activity, whether proximate or distant. I explore the question of what counts as nature and that of what counts as ecological restoration further in chapters 2 and 3 of the dissertation, and in those chapters I situate the study in the context of the abovementioned

issues. And although it is beyond the scope of this study to settle these larger issues, my findings suggest that ecological restorations in urban parks have the potential to improve the quality of urban life through improving urban ecology, even if it does so to a limited extent, by providing urban residents with opportunities to experience nature.

Statement of the Research Problem

The problem on which this research purports to shed light is that urban residents have few opportunities to experience nature or to engage in activities characterized by values or qualities that are associated with nature such as beauty, solitude, healthy living, and recreation. The ecologically restored areas of Lincoln Park provide an opportunity to study the effects of the restorations on urban dwellers' experience of nature and the values that users derive from or associate with them.

As indicated above, the broader context motivating this research is the contemporary debate within urban planning and design of the effects of urban green spaces on the ways in which human inhabitants of urban areas use such spaces to experience nature. The study was motivated by questions that enabled me to situate the problem within the broader philosophical framing of the human-nature relationship in urban settings, providing a well-documented instance of the effects of ecological restoration in an urban space of considerable historical and contemporary significance.

Significance of the Study

Priorities related to the purposes and uses of urban parks change over time, in large part due to changing economic, sociological, and environmental trends. The convergence of increasing interest in ecologically sound urban design that achieves some degree of sustainability

in the urban environment and renewed emphasis on the wise use of public funds as the availability of such funds decreases indicates the importance of assessing the degree to which urban parks deliver value to their users that justifies such public investment. This dissertation contributes to this ongoing discourse by examining user perceptions of the outcomes of ecological restoration projects in four areas of Lincoln Park. The results of the study provide relevant data analysis and a research framework within which similar studies could be applied to similar projects elsewhere.

Although the POE to which the dissertation research was related addressed the return on investment of these projects in more immediately practical terms—assessing whether users noticed and appreciated the park improvements made through the ecological restorations—the dissertation focuses on the quality of the experiences that users enjoyed while using the restored areas, especially regarding the areas' potential to allow users to be in contact with nature and value that contact in various ways. In this regard the dissertation contributes to the literature on ecological restoration by extending such research into an urban setting and identifying and analyzing the values that users associate with their experiences in the restored areas.

More broadly, then, this research contributes a valuable perspective on the relationship between urban dwellers and nature by analyzing how users of the four areas of Lincoln Park under study experience these areas. The results should add to our understanding of the capacity of urban parks to provide to nearby residents with the opportunity to experience within the urban environment what others experience outside of the urban setting in non-urban parks. Moreover, areas for further exploration emerged from the study, pointing the way to new research on the human–nature relationship and the dichotomy between built and natural environments.

Research Questions

The research questions that inform this study were developed independently of the Forest Service's interest in conducting the abovementioned POE. As noted, the Forest Service was interested primarily in understanding the degree to which the restoration projects achieved their design objectives, and facilitated and studied the participatory processes through which residents living near the four restored areas helped to plan and volunteered labor to help implement the restorations. As I have noted, I saw the research I would conduct for the POE as an opportunity to explore broader issues concerning urban living and the role of nature in an urban setting. To that end I sought to answer the following questions:

Research Questions:

1. What values do park users derive from or associate with the ecologically restored park areas in Lincoln Park? Which values are most important to them and why?
2. Do park users perceive the Lincoln Park ecological restorations as opportunities to experience or be in contact with nature, and why?

With the first research question I sought to identify and understand the values that urban park users associate with their experience of the restored areas. My readings in the relevant bodies of literature had suggested to me a range of values that might be involved in park users' experiences. The values that users actually associated with such experiences were ascertained, as I will explain below, in part through forced-choice interview questions and in part through open-ended interview questions.

The second research question reflects, in part, my belief that urban dwellers instinctively seek whatever nature they can find, and indeed respondents' answers to the interview questions identified contact with nature as an especially important value for them. Moreover, other values that are typically associated with experiencing nature also figured prominently in both the

quantitative analysis of the answers to forced-choice interview questions and in the qualitative analysis of the open-ended interview questions. Exploring this question therefore represented an opportunity to connect the research to larger issues related to ecological restoration in urban settings. If projects such as those carried out in Lincoln Park make it possible for users to experience nature, ecological restoration might be seen as a viable urban park design strategy that would improve the quality of life for urban dwellers.

Research Design and Method

Due largely to the circumstances in which the research that informs this dissertation was carried out, I pursued a mixed-methods methodology. This involved combining, on the one hand, quantitative analysis of survey-based and forced-choice interview data and observational data on park-user behavior with, on the other hand, qualitative analysis of respondents' answers to the open-ended interview questions. The interview instrument was, then, a semi-structured questionnaire that utilized both forced-choice and open-ended questions. As noted above, the questions in the interview instrument regarding values and contact with nature were added to inform the dissertation research, which was carried out in parallel with the field research for the POE sought by the Forest Service and the City Design Center.

The qualitative analysis was undertaken with a modified form of grounded theory methodology (GTM). I call this 'modified' GTM because, as noted above, I identified the values included in the forced-choice questions on the basis of the literature review and my familiarity with Gobster's work. The original set of values which formed the central themes of the study therefore did not emerge during data analysis, as prescribed by canonical versions of GTM. I explain the data analysis process in detail in Chapter 4.

I situated these mixed-methods analyses within a larger case study methodology that has been developed for landscape architecture (Francis, 2001), and because most of the elements of that methodology occupy portions of the second through fourth chapters of the dissertation, the dissertation therefore comprises a comprehensive case study of ecological restoration in an urban park. Although I describe the four cases separately in Chapter 3, for the purpose of the dissertation the data analysis pertains to all four restored areas. I treated the research and analysis as a single case study covering those areas because, although the projects can be differentiated, there was considerable overlap in design goals and approaches to restoration as well as in respondent sample characteristics across the areas.

Outline of the Dissertation

The dissertation consists of five chapters. The remainder of Chapter 1 presents a brief history of Lincoln Park, in part simply to situate the ecological restorations under study in their broad historical context and in part because three of the restored areas feature historical elements that were debated during the planning and design stages of the projects and were included in the final design and implementation stages. Chapter 2 presents a comprehensive review of the relevant literature, from which I derived my working definition of ecological restoration, the values that informed the forced-choice interview questions, and the theoretical basis for the research questions. Chapters 3 and 4 provide the main empirical content of the study. Chapter 3 describes the four areas of Lincoln Park under study in detail, summarizing both the restoration goals for each area and the completed state in each case. Chapter 4 explains the methodology in detail, and presents the data and the results of the quantitative and qualitative analyses, followed by an interpretive discussion of the results. Chapter 5 explores the broader implications of my

findings, addressing the question whether ecological restoration is a viable design approach for urban parks and reflecting on its potential to enable urban residents to experience nature. In that chapter I explore at greater length themes that I introduce in Chapter 4, themes that emerged from the data analysis. I conclude the chapter by acknowledging the study's limitations and suggest directions for further research that would build on my findings.

History of Lincoln Park

Lincoln Park, the largest of Chicago's 550 parks, occupies 1,208 acres of land, stretching 5¾ miles in length but only ¾ mile at its widest point. It is situated on the shore of Lake Michigan with a major traffic artery, Lake Shore Drive, running through and alongside it. Three-fourths of its acreage is man-made, consisting of land reclaimed by landfill on Lake Michigan. The most popular park in Chicago has a complicated and fascinating history. An area that began as shifting sand dunes and swampy marshlands growing little more than poison ivy and was placed on the National Register of Historic Places in 1994, Lincoln Park offers fifteen baseball fields, six basketball courts, two softball fields, thirty-five tennis courts, one hundred sixty-three volleyball courts, several field houses, a golf course and driving range, three harbors with boating facilities, six public beaches, dozens of landscaped gardens, a zoo, a plant conservatory and botanical garden, the Peggy Notebaert Nature Museum, the Chicago History Museum, many significant sculptures and monuments, and a handful of architectural treasures, including two other entries on the National Register of Historical Places—the Alfred Caldwell Lily Pool (one of the four areas under study here) and Café Brauer, at the Lincoln Park Zoo (Chappell, 2007).

Chicago and the Origin of Lincoln Park

The history of Lincoln Park directly reflects the history of Chicago: its citizens have been altering nature to suit their purposes from the very beginning. For example, in the area that became Lincoln Park, a long swale known as Ten Mile Ditch was dug between 1850 and 1855 from Evanston to just south of what is now the Lincoln Park Zoo to drain the marshes. The reversal of the Chicago River in 1900 was paralleled by the creation of the North and South Ponds in Lincoln Park and all the reclaimed land formed by breakwaters, jetties, and piers along the shore.

In 1837, when Chicago officially incorporated, it adopted the motto "*Urbs in Horto*," or "City in a Garden," although there were no parks at the time (Davis, 2005a). The attractive prairie landscape appealed to early settlers, and the earth was good for crops, but public parks were not the first thought in the minds of early settlers (Davis, 2005a). In *Hidden Truths: The Chicago Cemetery and Lincoln Park*, Pamela Bannos noted that the "story of the beginning of Lincoln Park overlaps with the story of the end of the City Cemetery" (Bannos, 2009). In February of 1837, the Legislature of Illinois granted the land bounded by what are now Webster Avenue, Clark Street, North Avenue/Boulevard, and LaSalle Street/Drive (the configurations have changed considerably to accommodate the park) to be used as the city's first official cemetery, although the initial cemetery acreage was confined to a much smaller parcel (Bryan, 1899). By 1860, the population had expanded northward and there were growing concerns about decomposing bodies contaminating the air and lake, which at the time represented the city's potable drinking supply (Bryan, 1899, p. 16). The Common Council voted first to prohibit the cemetery from expanding beyond lots already sold, and soon after to turn the forty acres north of the cemetery up to Webster Avenue into a public park, named La Framboise Park (Chicago Park

District Office of Research and Planning, 1991). Some minor improvements were made to the roads in the cemetery and a few trees were planted, according to Public Works documents, but little more than a fountain signified that the area consisted of public grounds (Bryan, 1899, p.18). In 1864, the park was named Lake Park, but this was changed in 1865. An existing park already went by that name, even if it was a desolate stretch of lakefront mud where Grant Park now sits (Davis, 2005b), so to honor the slain president it was renamed Lincoln Park less than two months after his assassination (Bryan, 1899).

Repeating a theme common to all too many publically supported not-for-profit institutions, the City of Chicago doled out funds irregularly, in amounts that were too paltry to properly endow or maintain an attractive park. With the renaming to Lincoln Park in 1865, however, the city finally appropriated $10,000 for real improvements (Chicago Park District Office of Research and Planning, 1991). A prominent landscape gardener, Swain Nelson, was awarded the contract to excavate ponds along the ditch and create small hills with the excavated earth, drain more of the lowlands to establish lawns, plant trees, and lay out drives and walks (Bryan, 1899). In 1868, Lincoln Park Zoo was founded with a gift of swans from Central Park in New York City. As additional donations of animals came, habitats and display houses were constructed.

The Influence of Health on Lincoln Park's Development

The mid-1800s saw a national rise in social consciousness as well as growing concern for public health needs: tenements were crowded, sanitation was poor, and contagious diseases spread across classes. Martensen (2009) traced the rise of public parks for the common good and the promotion of public health as espoused by one of Chicago's leading physicians and public

reformers, Dr. John Rauch. Dr. Rauch posited that the haze produced by the stagnant waters of the marshes and ditches combined with the decomposing corpses of the cemetery spread epidemic diseases (Martensen, 2009). Endorsing an expansive vision of Lincoln Park, Rauch spearheaded the movement to relocate the deceased buried in City Cemetery and create a functioning park for all classes. He wrote this in his famous tract of 1869, *Public Parks: Their Effects Upon the Moral, Physical and Sanitary Condition of the Inhabitants of Large Cities*:

> The moral influence of parks is decided. Man is brought in contact with nature,—is taken away from the artificial conditions in which he lives in cities; and such associations exercise a vast influence for the good. . . . From the preceding observations, particularly on the local topography and character of the diseases, there ought to be little doubt as to the proper positions in which parks should be located, in order to make them alike convenient to the city, and promotive of the public health. (Rauch, 1869, p.88)

Dr. Rauch's influence led the Illinois Legislature to create the Lincoln Park Act of 1869, whereby the boundaries of the park were set at what are now Diversey Parkway, North Avenue, Lakeview Avenue, and Clark Street—and the shore of Lake Michigan. The Act also established the Commissioners of Lincoln Park, the first park district board in the city. Finally, the Act provided that lands within the park, which were privately held, would be bought out, including the cemetery plots (Chicago Park District Office of Research and Planning, 1991). This latter transaction never fully transpired, and remains have been found during almost every new construction event over the years, even as late as 1998 (Bannos, 2009). Thanks to the shifting sands and natural lake activity, the park area increased from four to nineteen acres in just six years (Bryan, 1899). Thus in 1875 the first of many Lincoln Park reclamations had taken place naturally.

Lincoln Park: Development and Design

Swain Nelson's landscape design for the Park favored naturalism (as opposed to formalism), a landscape philosophy that was popular in Europe and just then beginning to sweep across America (Chicago Park District Office of Research and Planning, 1991). Nelson and his later partner, Olaf Benson, devised a plan that concentrated on using landfill to create public spaces such as ball fields, a parade ground, a bridle path, and walking trails, while retaining some features of the natural hills and ridges that were remnants of the glacial retreat some five to eight thousand years in the past (Davis, 2005a).

The rebuilding of Chicago after the Great Fire of October 1871 eventually catapulted it into prominence as a city of cultural, architectural, literary, political, and civic-minded importance. After years of wrangling over financial details, Lincoln Park officially and formally opened in 1877, although many parts of it had been in use by the public for years.

Before the Great Fire, Rauch began corresponding with Frederick Law Olmsted, the original landscape architect and co-designer of New York's Central Park (1859), hoping to hire Olmsted to refine and implement Chicago's parks into a systematic structure bound together by connecting boulevards (Davis, 2005b), akin to the eventual Burnham Plan of 1909. While this did not come to pass, Olmsted made a considerable impact on landscape architecture and the city with his magnificent design of the World's Columbian Exposition in 1893 (Sniderman, 1991).

Major storms in 1885 and 1886 wreaked such havoc on the lakeshore and the heavily trafficked Lake Shore Drive (following a path over what is now part of Cannon Drive and the Zoo parking lot) that sixty acres of landfill were added along with the construction of piers,

jetties, and a breakwater (Chicago Park District Office of Research and Planning, 1991). In 1889, wealthy landowners along the lakefront between Oak Street and Ohio Street, south of the main areas of the park, secured state legislation for construction of a boulevard (Pine Street) to be extended 1,000 feet from the existing shoreline; the money was “provided by the shore owners in return for deeds to the reclaimed land between the road and their properties” (Chicago Park District Office of Research and Planning, 1991). The ensuing breakwater and reclaimed land formed the Ohio Street Beach, the southern-most boundary of Lincoln Park.

One of the most comprehensive and detailed accounts of Lincoln Park was published in 1899 by the Commissioners of Chicago. *Report of the Commissioners and a History of Lincoln Park,* compiled by I. J. Bryan, the commission’s Secretary, is a 188-page history and description filled with minutiae concerning budgets, appropriations, and other commission business. The opening sentence observes: “Lincoln Park, as it is today bears little witness on its fair and smiling face of the slow and arduous steps, through a long period of years, by which its present beauty and its present extent have been reached” (Bryan, 1899, p. 13). Besides a few maps, many photos, and the inclusion of various commissioners’ reports, the gardener’s report enumerates some 1,427 species of plants and trees:

> There is hardly a tree standing in Lincoln Park today which has not been bought and planted there by the city of Chicago or by the Commissioners. Many of the old scrub oaks, which were scattered over the ground before it was converted into a Park, remained for some years, and a few still remain, but most of them died or were grubbed out to make way for more ornamental shade trees long ago. (Bryan, 1899, p. 112)

Bryan then notes that “Nearly 20,000 trees, 10,000 evergreens, and 15,000 shrubs have been bought at different times” at a cost of $48,301.80 (Bryan, 1899, p. 112). Many already

established trees were planted; some of the park's annual flora was grown from seedling in the Conservatory, which had been rebuilt in 1895.

The turn of the century brought even greater prominence to Chicago in several fields of design, landscape architecture being among the most acclaimed of these. One of the first women landscape architects, horticulturist Annette McCrea, held the titled post of Consulting Landscape Gardener for Lincoln Park (Chicago Park District Office of Research and Planning, 1991). Her brief term was followed by the long and highly praised tenure of Ossian C. Simonds, an experienced architect and proponent of naturalism. Simonds first studied under, and then worked for, William LeBaron Jenney, the father of the skyscraper and steel-framed buildings. Together they designed an extension of Graceland Cemetery (where many of the disinterred from City Cemetery had been placed), beginning Simonds's career as a landscape architect and proponent of native plantings (Sniderman, 1991). During his tenure, Lincoln Park was extended northward from Diversey to Devon Avenue, on which land he continued to apply his philosophy of native plantings and camouflaged buildings.

Daniel Burnham, Chicago's most famous architect and urban designer of the nineteenth and early twentieth centuries, also worked under Jenney. He was a co-designer of and Director of Works for the World's Columbian Exposition in 1893. Although he did no work specifically on Lincoln Park, it is impossible to overestimate his impact on the city, its parks, and the urban future:

> Burnham's plan of 1909 is the greatest single act of landscape design ever offered as a guide for the city. Integrating all elements of the growing city as well as the region it affected, Burnham's plan sought to comprehend the entire region as an interrelated system of built-up and open spaces. As with earlier plans, the aesthetic of the

> picturesque—water either moving or in ponds, irregularly framed open spaces, wooded borders and points of transition from one zone to another, the development and exploitation of topographic elements as seemingly natural features in the environment—dominated. The immediate regions of the various field houses or other focused elements of the parks were occasionally treated in a more formal manner associated with French or Italian landscape design. The most famous outcome of the Burnham Plan: the development of parks for almost the entire lakefront of the city. (Harrington, 2005)

Indeed, without its famous 30 miles of lakefront, Chicago has few noteworthy geographical features. Access to the waterfront was a contentious issue from early on: while the ever-changing lakeshore itself held developers at bay, proximity allured real estate speculators. In 1836, the Canal Commission and early city charter decreed the lakefront to be "Public Ground—Common to Remain Forever Open, Clear, and Free" (Wille, 1991, p.23). For over twenty years, the retailer Aaron Montgomery Ward championed this theme at his own expense, twice suing the city to remove buildings and debris and securing a court order for the removal of train tracks (Davis, 2006). In his plan, Burnham's primary concern before the creation of parks was protecting the lakefront from industrial or residential development so that it would be accessible to all Chicagoans (Davis, 2005c), for which Frank Lloyd Wright commended him: "Thanks to Dan Burnham, Chicago seems to be the only great city in our States to have discovered its own waterfront" (Davis, 2005c).

Jens Jensen is another name that must be noted in any history of Chicago parks or mention of Prairie School style. After emigrating from Denmark Jensen worked with Frank Lloyd Wright and was superintendent of several parks by 1890. Jensen is widely considered to be the definitive Prairie-style landscape architect, reflected in his masterful work in Columbus

Park. He was an ardent conservationist as an artist involved in the creation of naturalism—"nature-helping with a syntax of stone" (Domer, 1997, p. 17). Along with another prominent Chicago architect, Dwight Perkins (who had both worked with Burnham and was the architect of Café Brauer at the Lincoln Park Zoo), Jensen was a force behind the creation of the "outer belt park system," or the Forest Preserve, at the turn of the century (Christy, 1986, p. 4–5).

One of Frank Lloyd Wright's and Jens Jensen's many inspired disciples was the outspoken Alfred Caldwell, chief landscape architect in Lincoln Park in the late 1930s. His style manufactured a native landscape that copied natural ecosystems, the crowning achievement of which was the Lily Pool in Lincoln Park which, as we have seen, now bears his name (he was also involved in the design of another of the areas under study here, Montrose Point). In his own words, Caldwell characterized the Lily Pool thusly:

> A small elongate lagoon, made riverlike in character, flows through the garden. This river, in a sense, has cut a channel through limestone, and the ledges are intermittently revealed. A waterfall at one end is the river's source. The entire garden is planted as a forest. A stone walk winds through the forest near the water's edge. Wildflowers cover the ground each side. (Domer, 1997, p. 158)

Caldwell's employment at the Park District coincided with the Works Progress Administration (WPA), which supported public investments across the country. Caldwell's output from his work in Lincoln Park remains not only in areas of the park that bear his design imprint, but also in over 200 intricate drawings of plantings and lists of plants, shrubs, flowers, and trees, almost exclusively native species, about which he and Jensen were considered the foremost experts (Domer, 1997).

In 1934, the Commission of Lincoln Park was subsumed by the newly formed Chicago Park District, which then formed partnerships with New Deal agencies including the WPA and the Public Works Administration (Chicago Park District Office of Research and Planning, 1991). During the eight years in which the WPA was active, thousands of jobless men were employed in Lincoln Park to rehabilitate existing landscapes and implement standing plans that included paths, athletic fields, meadows, and rookeries (most of these plans were Caldwell's). During this time a topographical survey of the park was completed, the water system throughout the park was replaced, the park was expanded northwards, the Passarelle (a pedestrian bridge over Lake Shore Drive) was built, and work to expand and improve Lake Shore Drive continued (Chicago Park District Office of Research and Planning, 1991).

Lake Shore Drive in its various incarnations has always been a part of Lincoln Park, in some areas dividing the park, in others flanking it, and in one stretch constituting most of it. Over the course of the park's development since 1860, the need for vehicular accessibility has never stopped growing, at times by leaps and bounds. Lake Shore Drive thus occupies its own sub-area of the park running from East Ohio Street to West Hollywood Avenue, virtually all of it over reclaimed lands that, like most of the park, were once submerged in Lake Michigan (Chicago Park District Office of Research and Planning, 1991). While many hail this as one of America's most scenic routes, gracefully winding its way along the shore of Lake Michigan and affording the driver with lake vistas as well as a series of impressive city panoramas including Chicago's world-famous skyline, not everyone has been a fan. When working for the park, Caldwell wrote to his mentor, Jensen, of his disgust and displeasure:

> Poor Lincoln Park—it is too tragic—the ancient picnic grounds for Chicago's millions of poor—given over entirely now to the Buicks—to the city's prosperous mediocrity. . . .

> The citizen on foot is being disenfranchised, disinherited—to hell with the poor, to hell with picnics, to hell with landscape work. ROADS ROADS ROADS ROADS ROADS. You see it is all for the rich of suburbs who drive to their businesses. . . . Speed. Nothing is going to be left that could be termed a park. A man won't be able to walk over 300 or 400 feet without passing thru some stinking clammy concrete subway under some road or another. (Domer, 1997, p. 246)

Even given Burnham's Plan, which included boulevards, thereby inviting travel by car, no one foresaw the exodus from mass transit in favor of individual commuters that at times has choked Lake Shore Drive with traffic. One social historian, the first Frank Lloyd Wright biographer, recalled:

> It was now apparent that the greatest enemy to decency in that town was a machine. . . . Chicago began to suffer from the noise, poisoned air, nerve-wracking traffic jams, and danger that the automobile caused as each driver fought for running room and space in which to leave his machine when not using it. . . . Frank Lloyd Wright said, "The automobile is going to ruin this city." (Davis, December 2005d, pp. 27, 28)

In 1959, the ownership and maintenance of Lake Shore Drive and other roadways within the park were transferred to the City of Chicago (Chicago Park District Office of Research and Planning, 1991, p. 18).

After World War II, and the end of WPA funds, the final extension of Lincoln Park to Ardmore Avenue proceeded slowly due to financial constraints (Chicago Park District Office of Research and Planning, 1991, p. 16). Eventually, in 1957, the implementation of the Foster-Ardmore extension was complete, thus establishing the present-day northern boundary, beyond

which were privately held properties abutting the shore (Chicago Park District Office of Research and Planning, 1991, p. 18).

The next true landmark in the history of Lincoln Park was the formation of the abovementioned Lincoln Park Steering Committee in 1989, which with the Park District formulated the Lincoln Park Management and Restoration Plan (Gobster, 2002b), eventually approving the *Lincoln Park Framework Plan* in 1995. The Steering Committee formed several subcommittees charged with addressing "recreation, historic preservation, wildlife, traffic and parking" (Gobster, 2002b, p. 4). With the last expansion of the park having been completed in 1957, in the interim park conditions had deteriorated considerably, which in addition to the social ills mentioned at the beginning of this chapter involved damage to some 80% of the park's trees from "injuries or health problems due to basal wounds by lawnmowers and dumping of charcoal by picnickers" (p. 4).

The Forest Service was involved in the new initiative from the beginning, with Gobster a member of the Steering Committee who conducted a series of studies based on his observations of the processes involved in the restoration efforts. In particular, the Forest Service provided funding for the four ecological restoration projects in the natural areas under study in this dissertation, the goals for three of which were mentioned explicitly in the Framework Plan (at the time, the Lily Pool was still under management by the Lincoln Park Zoo). The introduction to the Framework Plan notes that it was "not a construction blueprint but a framework for decision-making. It provides guidance to the Chicago Park District, other government agencies and the community" (Chicago Park District & the Lincoln Park Steering Committee, 1995, p. 3). Thus the four ecological restorations in Lincoln Park were planned, designed, and implemented

separately, with separate stakeholder groups involved in each case. I present the cases in detail in Chapter 3.

The completion of the recent renovations and restorations of most of Lincoln Park may not bring its development to an end. Inspired by the citywide celebration of the legacy of Daniel Burnham during the 2009 Burnham Centennial Celebration, which commemorated Burnham's 1909 comprehensive development plan for the greater Chicago area—a plan that included making the entire lakefront available for public enjoyment—a local stakeholder group called Friends of the Parks initiated a campaign to extend Chicago's lakefront parks north and south to occupy the entire 30 miles of lakefront park land. This would mean extending Lincoln Park north, beyond Hollywood Avenue, to the border with the city of Evanston.

A 1973 law—the Chicago Lakefront Protection Ordinance—mandated the goal of the movement now known as the Last Four Miles: "Complete the publicly owned and locally controlled park system along the entire Chicago Lakefront" (Friends of the Parks, 2013). It is not clear how much, if any, of the extension of parkland north would be incorporated into Lincoln Park, and there is local opposition among residents of the Edgewater and Rodgers Park neighborhoods (Gilmer, 2009), whereas most of the southern extension would reclaim industrial lands. It would be relatively easy, however, to extend Lincoln Park north to Loyola Park and Beach. Between Lincoln Park and Loyola Park and Beach there are a few discontinuous small parks and street-end beaches, which would be made continuous with Lincoln Park if the project were to be completed, which entails adding landfill in some places to ensure minimal disruption of local housing and transportation patterns.

Ecological Restoration: History and Ecology

The ecological restorations on which this dissertation focuses should be understood within the context of Chicago's rich architectural and public works history. The expansive approach to landscape design that marks this history applies to Lincoln Park in many ways, constituting a design aesthetic under which the restorations fit comfortably. It is perhaps no surprise then that any attempt to change even small parcels of the landscape of an urban park in Chicago would need to adhere to a longstanding historical sensibility. In several of the cases addressed here, there were stakeholders with specific interests in restoring or preserving what they believed were historically significant features of the targeted areas. Still, as my research shows, although many users of the restored areas appreciated features having historical significance, the majority valued the restored areas primarily because they offer contact with nature and wildlife in an urban setting.

The following chapter, which reviews the literature that informed my research, introduces several important issues related to ecological restoration, indicating the wide range of values that stakeholders with disparate interests bring to the negotiating table in the design and planning stages of restoration projects. This study, as I have noted, focuses more on the product of restoration than on the process, seeking to identify the values that users associate with their experiences in the restored areas as well as the extent to which they see the areas as opportunities to be in contact with nature.

CHAPTER 2

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Ecological restoration as an approach to park design deserves serious attention because it represents an attempt to restore, reconfigure, or even reimagine nature in settings that stand to benefit large numbers of people. The following literature review surveys the core themes pertaining to ecologically restored urban parks that inform this dissertation, indicating sources of the values that were included in the forced-choice questions that I incorporated into the survey instrument. The review begins by tracing attempts in theory and practice to define ecological restoration, providing the working definition I used in my research. Adopting a viable definition of ecological restoration is no trivial matter in this case because, as I explain below, I am following the Forest Service in extending the concept of ecological restoration to an urban setting. This is not unprecedented, as I show, but it nevertheless requires that I address important components of the concept.

Another important theme I address here is the relationship between humans and nature. Again, this study is motivated in part by my interest in understanding the extent to which ecological restoration in an urban setting makes it possible for urban dwellers to experience or enjoy contact with nature. It is important to situate this question against the broader philosophical backdrop that explores what counts as 'natural' in an urban setting and whether it is possible to restore a space to its natural state after it has been dramatically altered by human activity. The literature review therefore also considers skepticism about ecological restoration.

Following the exploration of these central themes in the literature, I briefly review such related themes as user preferences, perceptions, and uses of parks and park design. I then

introduce the list of values that I used for the forced-choice survey/interview questions to explore aspects of users' experiences of the restored areas in the context of studies in the literature that were particularly salient in identifying those values.

Defining Ecological Restoration

Based on the judgment of the Forest Service, my knowledge of the literature, and the design goals of the coalitions of stakeholders who planned and implemented the improvement projects, I classify all four of the Lincoln Park restoration projects under study as cases of ecological restoration. There is, however, no universally accepted definition of ecological restoration. The idea of ecological restoration—also known as restoration ecology—was institutionalized with the founding in 1988 of the Society for Ecological Restoration (SER). In defining ecological restoration for this study, I have built on the model provided by the SER, although over the course of its existence the definition has evolved. It is not my purpose to argue for a single "correct" definition of the concept, but it is worth considering how scholars and stakeholders have characterized it because the evolution of the concept reflects the philosophical struggles of those who have pursued it as an objective.

In 1990 the SER defined ecological restoration thusly:

> Ecological restoration is the process of intentionally altering a site to establish a defined, indigenous, historic ecosystem. The goal of this process is to emulate the structure, function, diversity, and dynamics of the specified ecosystem. (Higgs, 2003, p. 107)

This definition (closely followed by Jackson, Lopoukhine, and Hillyard, 1995, p. 71) served merely as a point of departure for what at times has been a contentious debate, as it was

criticized on the grounds that it is arbitrary insofar as there is often little or no evidence by which to determine the content or character of earlier ecosystems, which makes it difficult to determine what "indigenous" would mean when applied to areas that human practices have transformed over thousands of years (Higgs, 1997).

Cairns (1995) observed that restoration necessarily involves social values, claiming that "Ecological restoration is a positive statement of cooperation with natural systems" (p. 342). Cairns therefore argued that restoration is a social practice, and that, ultimately, a broader definition of ecological restoration that includes scientific and social/cultural contexts is needed.

Higgs's retrospective account of the 1994 SER conference in his second major discussion of the definition of ecological restoration in his book *Nature by design: People, natural process, and ecological restoration,* suggests that the social element of ecological restoration had been acknowledged, as the SER strained to adopt a new definition. He recounted the decision on the part of those assembled to submit cases of purported ecological restoration to the "duck test," following the old saw that "if something looks like a duck, quacks like a duck, and walks like a duck, it must *be* a duck" (Higgs, 2003, p. 102). The application of the duck test did not, however, settle the issue for the SER. As Higgs noted:

> At a very general level restoration is easy to recognize, which is why the most general metaphor-based definitions work at least passably well, but when the limits are pushed and specification is necessary, our clearest thoughts are clogged by complication. The discussions [involving the duck test] in Michigan were intended to clear the fog. When they did not, we were surprised and humbled." (Higgs, 2003, p. 106)

In spite of this ongoing difficulty in defining ecological restoration among its most ardent proponents, Higgs (2003) noted two concepts that emerged over the course of the process:

ecological integrity and *historical fidelity*. Most definitions express concern for the quality of a given ecosystem (integrity) and the extent to which it reflects the history of the place (fidelity). Beyond that, Higgs notes that when defining ecological restoration it is crucial to take into account the use of language, the malleability of the field, and the need to be inclusive while considering the social, cultural, aesthetic, economic, political, and moral values that such a project promotes.

Higgs then followed the SER's tortuous definitional course to its 1996 conference, at which a new definition was formulated, one that better acknowledged cultural and moral contexts:

> Ecological restoration is the process of assisting the recovery and management of ecological integrity. Ecological integrity includes a critical range of variability in biodiversity, ecological processes and structures, regional and historical context, and sustainable cultural practices. (Higgs, 2003, p. 109)

This broad definition acknowledges a connection to history. That is especially relevant to two of the Lincoln Park restorations in particular, because both involved concerns about preserving or restoring features that some stakeholders regarded as emblematic of Chicago's rich history in landscape architecture and as integral to the appeal of the areas. So restoring the historical context in these cases was seen by some stakeholders as requiring a high degree of fidelity to past design principles.

Still, consensus within the SER remained elusive, although Higgs eventually endorsed one that is noteworthy for its conciseness: "Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed" (2003, p. 110). About this formulation, Higgs offered that "it is just right, in my view: it is sufficiently open to allow

many varieties of restoration to flourish, yet gives a serious nod to historical conditions and assisted recovery" (p. 110).

Ultimately, the term *restoration* implies returning to a prior or original state and, as such, may not be ideal, especially in cases in which it is difficult to identify such a prior state. Perhaps *reparation* or *regeneration* would be more appropriate. Higgs (2003) notes that, although the trend indicates that 'restoration' is an umbrella term for a diverse set of practices, he prefers a more narrowly conceived definition. Higgs concluded by stating:

> The best way forward . . . is to ensure that *ecological restoration* is defined in a way that simultaneously honors ecological integrity and historical fidelity, excludes practices that undermine these core ideals, and enlarges the prospect of people living respectfully in and around restored places. (p. 130)

I am to a considerable extent partial to this last observation by Higgs. Nevertheless, it is worthwhile acknowledging other considerations that have accompanied attempts outside of the SER to define ecological restoration. These include Davis and Slobodkin (2004), who argued that the process of defining restoration practices and goals is based on values, not science. That view favors my approach, which involves identifying values that users of urban parks associated with restored areas, over one that would focus on the technical details of a given restoration project to determine the extent to which it achieves a particular ecological outcome. Ehrenfeld (2000) suggested that the goals of ecological restoration should be specific to each project, depending on the particular conditions of, scale of, and reasons for such a restoration. She also recommended that restorationists be very careful when claiming to have restored a site to its 'natural' state, a reminder that ecological restoration underscores the difficulty of defining what 'natural' means, especially in an urban setting. These points also pertain to my study, because it

seems clear that restoration goals in urban settings must differ from those applied to non-urban or wilderness settings.

Ultimately, as Higgs (2003, pp. 110–112) observed, ecological restoration is both a process and a product. Applying this dualism to this dissertation, given the circumstances under which the research was conducted, I focus more intently on the product than the process, because I conducted my dissertation research in the context of the POE for the Forest Service and the City Design Center, after most of the process work had concluded. Higgs includes in the concept of the process the social activities through which ecological restorations are planned, designed, and implemented, but he also refers to ongoing maintenance of a restored area as well as the natural processes that play out once the work is complete. So although this study investigates how those who use the restored areas in Lincoln Park perceive the product of a restoration, my research focus is not intended to diminish the importance of restoration processes before, during, or after the completion of a given restoration.

Let us then work towards a definition that builds on Higgs's approach. A restoration is indeed a product as well as a process, leaving a human trace that reflects a given project's objectives. For this reason, the values associated with the goals of an ecological restoration project should be identified and analyzed, and this study does just that by collecting data that should indicate, among other things, the quality and extent of the relationship with nature that users of the Lincoln Park restorations derived from that work. Thus, for the purposes of this study, I define ecological restoration as follows:

> Ecological restoration is a process that creates as a product a historically representative natural ecosystem within a defined space that achieves indigenous ecological integrity

and repairs elements within that space that have been damaged, degraded, or destroyed by human activity.

Applying this definition to the Lincoln Park projects included in this study inevitably raises several theoretical questions, including the aforementioned issue of what is 'natural' in an urban setting and the extent to which restoring an urban park to such a 'natural' condition enables park users to develop or enhance their relationship with nature. These are important questions because most ecological restoration projects occur in non-urban settings and in most such projects the goal is to restore an area to conditions that would have obtained had there been no anthropogenic effects on that area. So, while most ecological restoration projects seek to address the effects of human activity, as we saw in the introduction most of Lincoln Park was under Lake Michigan water prior to the initial development of Lincoln Park. This differentiates these cases from most other ecological restoration projects not only because the restored areas are in an urban setting but also because there is no question of restoring these areas to a historically indigenous ecological state. The issue instead is to restore these park areas to conditions that represent elements of natural or indigenous landscapes and ecosystems that are typical of the climatological and ecological geography of the area. To be sure, there is restoration involved because these areas of the park had deteriorated due to human activity and the goal was to return them to conditions in which humans could once again enjoy or experience nature when visiting them.

Still, even very recent characterizations of ecological restoration may say little or nothing about restoring *urban* settings to previous or desired ecological states. In a general introduction to the concept of ecological restoration for the Nature Education Knowledge Project, for example, Vaughn et al. (2010) mention addressing urban runoff in a list of ecological restoration

goals, noting that the effects of urban and agricultural runoff can be mitigated through revegetation (the other listed goals are habitat enhancement, remediation, and mitigation), but elsewhere in the article there is no reference to ecological restoration in urban settings. Indeed, even when listing sources of anthropogenic disturbance, the article mentions only "clearing land for agriculture," "damming rivers for flood control," and "suppression of wildfires and prevention of periodic flooding." A prominent textbook on ecological restoration (van Andel & Aronson, 2012) similarly makes almost no mention of ecological restoration in urban settings.

Apart from their urban setting, the Lincoln Park restoration projects I examine in this dissertation seem also perhaps to involve too small a scale to register as serious restoration projects. Here I turn to Higgs again, who begins his book, in reference to Robert Frost's *The Road Not Taken*, by declaring that ecological restoration was in 2003 approaching "a fork in the path" between what he called *technological* restoration, exemplified by large-scale projects requiring significant investments and sophisticated technologies, and *focal* restoration, exemplified by projects that, like the Lincoln Park restorations, involve "community engagement and local culture" (Higgs, 2003, pp. 3–4). Regarded as examples of focal restoration, the areas of the park that have been restored fall under the definition of ecological restoration that I have adopted, as I extend the concept of ecological restoration to the context of urban parks. Before exploring the literature on ecological restoration in the urban environment, however, it is important, having defined ecological restoration for the purposes of my study, to consider voices of opposition from skeptics who doubt that the very concept of ecological restoration makes sense.

Skepticism Regarding Ecological Restoration

Can humans really restore nature? That question represents an ongoing debate about the very possibility of ecological restoration. Skeptics such as Elliot (1982), Katz (1992, 2000), and Choi (2004) have argued that there is something fundamentally flawed in the very idea of ecological restoration. Elliot likens restoration to art forgery, Katz argues that restoration is simply humans shaping nature according to their needs and desires, and Choi doubts that returning to a pre-human 'natural' environment is achievable, practical, or desirable. Ladkin (2005) responds to Katz's arguments by replying that, even if ecological restoration cannot replicate the value of the natural landscape, it can add value even in a 'fake' landscape, suggesting that it might be wise to replace *restoration* with *rehabilitation* and *reinhabiting*, concluding that restoration does not necessarily have to be dominating and can benefit both humans and nature.

Katz (2000) later refined the case against ecological restoration while continuing to associate it with human hubris and arguing that human intervention fundamentally changes the meaning and value of a natural entity and alters the course of a natural system. Light (2000), a self-styled environmental pragmatist, is concerned that Elliot's and Katz's arguments have come to represent the voice of environmental philosophy in wider discussions. In response to Elliot's art forgery analogy, Light replies that ecological restoration is more like art restoration than art forgery, and can therefore ensure the continuity of the original ecosystem without remaking the landscape entirely.

Against Katz's domination argument Light (2000) insists that (a) ecological restoration makes it possible for nature to take its course after a trauma by activating natural processes and protecting the area from exotic species; (b) human interference is ethically warranted when

humans caused the initial harm; (c) ecological restoration is often implemented in the face of public resistance; and (d) ecological restoration considered as restitution does not interfere with or restrict the "self-realization" of nature.

Ultimately, Light argues that even if Elliot and Katz are right that it is impossible to restore an area to a fully 'natural' state, and that ecological restoration is a form of interference, it has the potential to establish a sound moral relationship between humans and nonhuman nature. To cultivate a normative relationship with nature, humans need to do more than respect its "self-realization" and autonomy: they have to become actively involved with nature. Even if restoration creates relationships with human artifacts rather than nature, restoration still allows nature to take its own course within the circumscribed limits of a given project, and helps humans learn about natural processes and better understand the results of human domination and destruction.

This dissertation shifts such skepticism about ecological restoration into the background and assumes that ecological restoration of urban parks is indeed possible. The areas of Lincoln Park whose users were surveyed and observed for this study were certainly restored to conditions that resembled previous stages of their respective histories, and these restorations for the most part were intended to bring users closer to experiencing nature in settings whose ecological qualities figured prominently in the restoration designs. There may be another name for this than 'ecological restoration,' but I have cited many sources here that suggest that it is reasonable to apply that term to these projects.

Ecological Restoration in Urban Parks

The Urban Context

In recent years, questions of scale and historical authenticity notwithstanding, ecological restoration has become an important and frequent practice in urban areas. Urbanization, reflecting increasing concentrations of human populations, negatively effects native ecosystems due to the large scale of human intervention (Kaye, Groffman, Grimm, Baker, & Pouyat, 2006; McKinney, 2002). Land use that involves high-density human occupation and activity results, as anyone can easily observe, in significantly less vegetation than is found in non-urban areas (Iverson & Cook 2000). These findings, far from implying that urban areas are unsuitable to ecological restoration, suggest instead that the need to adapt the principles of restoration ecology to such areas is more urgent than ever.

The fragmentation of natural landscapes in urban areas can negatively affect biodiversity and species survival (McKinney, 2002; Miller & Hobbs, 2002; Lundberg et al., 2007; Croci et al., 2008). Bastin and Thomas (1999) suggest that in such a fragmented urban landscape an extinguished species will not be able to repopulate without human assistance, making ecological restoration an important practice in urban areas. However, Croci et al. (2008) state that, because urbanization changes landscapes and ecosystems so extensively, restoration in its strictest sense, as “the return of disturbed land to a natural state,” is not always possible (p. 1184). Again, one might argue that the Lincoln Park restorations fall into this category because they were carried out on landfill, but the reply to this is that they nevertheless constitute small natural areas within the broader urban context. Determining the extent to which that is true is built into the research questions this study seeks to answer. Moreover, without such mitigation, both remaining and restored natural landscapes in urban areas would suffer.

Alario (2000) suggests that ecological restoration can improve the urban quality of life by increasing human access to nature, an issue that I address below and which is a main focus of this study. According to Dunn, Gavin, Sanchez, and Solomon (2006), increased contact with nature is an important factor in creating human connections—feelings of familiarity or place—to nature. The present study is designed to explore these issues by investigating the extent to which users of the restored areas of Lincoln Park under study do so to experience nature and assessing the quality of the connection to nature that results.

Urban Restoration

Urban restoration projects are often more complex than non-urban projects because extensive ecological change requires more intense interventions (Pavao-Zuckerman, 2008). Lindig-Cisneros and Zedler (2000) document the particular challenges facing urban restoration projects, including the extent to which a site has been degraded, the availability of reference information indicating historical conditions or indigenous botany or zoology, and the lack of connectivity of urban sites to other natural communities. Most significantly, urban restoration projects operate within the limits required to sustain local communities, such as managing water tables to protect homes against flooding.

Although much research has examined the restoration of aquatic systems (Purcell, Friedrich, & Resh, 2002; Niezgoda & Johnson, 2005; Larned, et al. 2006) and migratory bird habitats (an important function of at least two of the restored areas in Lincoln Park) in urban areas (Leston & Rodewald, 2006; Donnelly & Marzluff, 2004; Clergeau, Jokimaiki, & Savard, 2001), less emphasis has been placed on the restoration of urban sites to accommodate terrestrial life. Heneghan, Umak, and Workman (2009) lament the lack of research on urban ecosystems

and recommend that further research augment restoration management approaches. Although birds represent the animal species affected most directly by the Lincoln Park restorations, terrestrial species are also affected and some respondents to the survey instruments mentioned non-avian wildlife as elements of the park areas that they valued.

As we have seen in the introduction, the implementation of projects such as the Lincoln Park restorations requires negotiations among multiple stakeholders and administrative bodies. Ehrenfeld (2000) notes that restoration projects in urban environments must take into account the local history of the landscape and its value to the surrounding community. A restoration project in an urban area should be evaluated within the constraints of the relevant social context. In Lincoln Park, as I will show in chapter 3, this meant respecting historically established uses of the areas as well as historically significant features that users had established a pattern of appreciating.

The urban social context begins with acknowledging that, as Gobster and Barro (2000) point out, the natural landscape in an urban park has been modified by human activity over long periods of time. Indeed, as we have seen, the applicability of the term ‘natural’ to an ecologically restored urban site remains controversial. Del Tredici (2004), for example, argued that it is more important to implement ecological restoration by planting species that will survive under current conditions than so-called native plants that once thrived in a presumably more natural pre-urban state:

> The concept of implementing ecological restoration in an urban or suburban context is particularly problematic. With all the pavement, road salt, heat build-up, air pollution, and soil compaction, the urban landscape is an inhospitable place for plants. . . . The successful design of urban landscapes calls for a careful analysis of the conditions that

> prevail on the site, followed by a determination of what species are best able to tolerate these conditions. (Del Tredici, 2004, p. 2)

Responding to these remarks more recently, Rainer (2010) agreed with Del Tredici that "ecological restoration creates 'entirely artificial and constructed' landscapes," but he argued that it is nevertheless worth the effort to favor native plants as long as someone is willing to commit to the continual maintenance that is required to sustain ecological restoration in an urban site (in other words, restoration as process). We have seen that coalitions including nearby residents collaborated with the Chicago Park District and other agencies to plan and implement the restoration projects in Lincoln Park, and that these efforts required balancing diverse stakeholder interests. Urban populations almost inevitably represent a diverse range of views and values regarding what form nature should take in urban parks; negotiating nature in park management depends therefore as much on cultural acceptance as on science (Gobster, 2001, discusses this at length).

Although the broader literature on ecological restoration devotes relatively little attention to urban parks and urban settings generally, since 1995 the restoration and maintenance of urban parks has assumed what Gobster (2001), following Dwyer and Stewart (1995), characterized as "ecosystem approaches," which recognize

> the complex interaction between physical, biological, and social aspects of landscape planning and design, and necessitate interdisciplinary involvement from such diverse perspectives as landscape ecology, restoration ecology, landscape architecture, and historic preservation. Ecosystem approaches offer the potential for large urban parks to be more than aesthetic symbols of nature—such parks can contribute to local and

regional biodiversity . . . and bring nature education experiences in close proximity to millions of people. (Gobster, 2001, p. 36)

Cranz and Boland (2003) also observed the emergence of an ecosystem approach, answering their own question, "Can parks help create more ecologically balanced and sustainable cities?" in the affirmative (p. 44). Boland and Hunhammar (1999) found that natural spaces in urban environments perform a range of "ecosystem services" such as air filtration, micro climate regulation, noise reduction, and rainwater drainage.

This ecosystem approach brings urban parks within the scope of ecological restoration, even if the restoration of an urban park does not re-create an ecosystem that once occupied that precise location. As I argue, when restoration projects create natural spaces that represent historic regional ecologies, urban ecological restoration can provide city residents with access to nature. I therefore turn now to consider studies that explore the potential of ecological restoration of urban parks to enhance the human–nature relationship.

The Human–Nature Relationship in and Values Associated with Ecological Restoration

Ecological restoration offers an opportunity to reconnect humans with nature. It is perhaps an unfortunate legacy of the Enlightenment and modern science that many Western thinkers have dichotomized humans and the natural world, requiring elaborate epistemological theories to rationalize the human capacity to apprehend and comprehend "an externalized nature as an object of knowledge" (Egan, Hjerpe, & Abrams, 2011, p. 3). As part of the broader movement to incorporate human activity into environmental analysis that characterized the environmental movement of the later twentieth century, ecological restoration may provide a means of moving "beyond the human–nature dualism and [embracing] the reciprocal role

humans have with nature" (p. 7). The potential of ecological restoration to help humans reconnect with nature in an urban setting—in both the process and the product—informs one of the main research questions that motivate this dissertation.

Cairns (1995) argued that humans need to protect natural systems because we depend on them for survival. Simply put, people in contemporary society are less intimately connected to nature than we once were. Cairns believes that changing human attitudes towards nature should be part of the solution to changing human behavior, and that ecological restoration has the potential to allow humans and natural systems to co-evolve. Based on Cairns's approach, *ecosocietal* restoration would involve examining the relationship between nature and society, affirming human cooperation with nature, improving human knowledge of nature, and increasing human experiences in nature. If we do not approach ecological restoration within such a broader context, Cairns argues, we may defeat the purpose. Since human interference causes the problems that ecological restoration is designed to resolve, Cairns warns, it must be applied very judiciously to avoid arbitrary and disruptive interference with natural succession.

Jordan (2000) sees potential in ecological restoration for improving or transforming our relationship with nature, arguing that ecological restoration has been overlooked due to its perceived impracticality and seemingly arbitrary definition of historic nature. Given the tenuous relationship between nature and culture, ecological restoration has not yet developed a clear enough expression of our cultural and environmental values. Jordan advocates forming an ecological community in which humans and nature coexist in a relationship marked by reciprocity.

From the perspective of environmental philosophy, Light (2000) argues that ecological restoration has the potential to restore the human relationship to nonhuman nature. Light (2002)

sees this potential first in the process of ecological restoration, as participants in restoration projects form “stronger and better relationships of stewardship or care between human communities and the nature around them” (p. 154). Light therefore argues that the quality and extent of public participation in ecological restoration should be viewed as benchmarks of success no less than the degree to which such projects restore natural processes and ecosystems, since restoration “is as much about restoring the human relationship with nature as it is about restoring natural processes themselves” (p. 155).

While I have acknowledged the vital role of public participation in the planning and implementing of the four projects in Lincoln Park that form the basis of this study, the study itself focuses more sharply on the effects of these projects on local users of the respective park areas, on restoration as product. Light’s thinking applies to this population as well, as he argues that it would be more effective to reconnect urban residents to nature not by sending them into the wilderness far from home but instead connecting them “with the natural systems in their own back yards and public places where they do live rather than striving to engage them with the environments of their prehistoric ancestors” (Light, 2006, p. 96). Although Light argues that participation in ecological restoration projects may be necessary to establishing such a reconnection with nature, this study seeks to measure the extent to which the post-restoration use of ecologically restored urban parks, even absent such participation, facilitates such a reconnection. The broader question is whether, in Light’s words, “the restoration of the human relationship with nature is possible even if”—as some argue—“ecological restorations are culturally produced objects” (p. 102).

Gobster (2001), in a study of the planning process that informed the restoration of Montrose Point (one of the four areas of Lincoln Park targeted in this study), identified four

distinct but sometimes overlapping "visions" of nature that he discerned from the input given by various stakeholder groups. The main purpose of this process was not to enlist volunteers to participate in the restoration project—to do the sort of hands-on work that Light believes facilitates the human/nature connection—but to gauge the interests and values that future users hoped to see incorporated into the plan. I discuss Gobster's case study of Montrose Point at greater length below, where I introduce the list of values that I drew up for the survey instrument, as this study was a major source of my initial thinking about the values that park users might associate with the ecological restorations in Lincoln Park. And although the field research that supports this dissertation was not designed with Gobster's specific vision categories in mind, it was designed to elicit from current park users data indicating the extent to which they believe that they experience nature when visiting these areas of Lincoln Park, the quality of that experience, and the values they associate with such visits.

Ultimately, if we accept that ecological restoration of urban parks is possible, even given that it is nearly impossible to return to a historically accurate state *in a specific park area* (Gobster, 2001, p. 44, observes that Montrose Point, like most of Lincoln Park—as noted here more than once—was fully submerged by Lake Michigan when it was first built), we must also consider the possibility that such an urban restoration project provides opportunities for park users to be in contact with nature. After all, no matter how many people might be involved in a given restoration project, the number of people whose relationship with nature may be affected by the results of such a project—the product—is vastly greater. That is why a considerable part of this study's contribution lies in measuring the extent to which parks users feel connected to nature when they are in those areas.

Additional Themes from the Literature Review

The research conducted for this study was informed by other strands in the broader literature on ecological restoration and park use. These studies helped to shape the conceptual or theoretical foundation on which I conducted my research, but generally did not contribute directly to my approach, as did the readings I have reviewed above.

Research on User Preferences, Perceptions, and Use of Parks

The present study is designed to elucidate the connection that users of Lincoln Park have with nature in the four restored areas, and will contribute new data to the literature that considers the preferences and perceptions of park users with respect to both natural and human-made open spaces. My interest in user perceptions of urban parks is a legacy of the pioneering work of Zube and other scholars who studied how people perceive and assess the properties of landscapes, which Zube argued should be connected with related work in environmental psychology (Zube, Sell, & Taylor, 1982, p. 22; see also Zube, Pitt, & Evans, 1983; Zube, 1984; Zube, 1987; see also Gobster, Palmer, & Crystal, 2003, for an overview of Zube's research and influence).

Zube et al. (1982), which many regard as a seminal work in several fields and consolidated the research tradition in which this study was undertaken, began by outlining a model for the study of landscape perception and assessment that posits three principle components: the human, the landscape, and outcomes of interactions between humans and the landscape (pp. 3–5). The article then reviewed a large body of research related to landscape perception and assessment, identifying four research paradigms under which such work has been conducted: the expert, the psychophysical, the cognitive, and the experiential (p. 8). The expert paradigm elicits "the evaluation of landscape quality by skilled and trained observers." The

psychophysical paradigm tests “general public or selected populations’ evaluations of aesthetic qualities or specific . . . properties.” The cognitive paradigm searches “for human meanings associated with landscapes or landscape properties.” Finally, the experiential paradigm “considers landscape values to be based on the experience of the human–landscape interaction, whereby both are shaping and being shaped in the interactive process.” Zube et al. then attempted to sketch the outline of theoretical approach to landscape perception that would integrate the four research paradigms. My research for this dissertation bears affinities with at least three of these paradigms—the psychophysical, the cognitive, and the experiential—in particular by combining my interest in what natural areas in urban parks mean to users in the urban context with my interest in the values that users associate with urban parks. I should note also that Zube et al. associated interest in “the natural/man-made dichotomy,” a theme in the literature reviewed above and discussed at greater length in Chapters 4 and 5 below, with the cognitive paradigm.

Although my research focused on preferences related to experiencing nature in an urban setting, park user preferences may relate to a wide range of specific activities, facilities, social patterns, or aesthetics, helping to shape perceptions of park use as beneficial, safe, or meaningful. In an early study from the perspective of ecological restoration, Harrisson and Limb (1988) argued that creating nature preserves within urban environments offers a range of personal, cultural, and social benefits stemming from the pleasure of contact with nature and opportunities for cultural expression.

Parks have indeed been shown to have many benefits, including psychological and economic ones (Shin, Kwon, Hammitt, & Kim, 2005), while at the same time contributing to the formation of a local identity (U.S. Department of the Interior National Park Service, 2002). In a

U.S. Department of the Interior National Park Service report (2002) it was found that, while most park users prefer a 'natural' landscape, they also enjoy a range of preferential activities. This same report also identified sources of conflict among national park users based on conflicting preferences for and attitudes towards recreation. Payne, Mowen, and Orsega-Smith (2002) found that differences in race, age, and residential location contribute to such conflict.

In spite of such conflicting values, however, parks continue to serve multiple purposes—ranging from recreation to enjoying natural environments to social interaction (Uslu, Kiper, & Baris, 2009). The potential for similar conflicts was acknowledged by Gobster's (2001) abovementioned study of the visions of nature articulated by participants in the planning process for the restoration of Montrose Point in Lincoln Park. Park use patterns are also affected by perceptions of accessibility, quality, proximity, and safety (Ries, Voorhees, Roche, Gittelsohn, Yan, & Astone, 2009; Mowen & Confer, 2003). For example, Lackey and Kaszynski (2009) showed that frequent park users perceived themselves to be living in closer proximity to parks than infrequent users even when the comparative proximity between the two groups was similar. Thompson (2002) argued that open urban spaces provide a number of benefits, serving social and psychological needs and supporting sustainability, but must be planned carefully to accommodate a diversity of stakeholder preferences.

Research on the Design and Use of Parks

Park design influences how people use parks and the social relationships that arise within parks. There is, however, very little research on the relationship between park use patterns and park design, which my research is designed in part to remedy. Some areas that have been explored include: the layout and quality of the built environment (Zacharias, Stathopoulos, &

Wu, 2004), types of use, whether active or passive (Goličnik & Thompson, 2009; Murato, 2009), community access points (Coutts, 2008), and proximity (Cohen et al., 2006). Francis (2003) studied the impact of diverse or conflicting user needs and preferences on park design, focusing particular attention on an apparent conflict between those who prefer designing urban parks primarily with human use in mind and those who prefer designing urban parks primarily to restore and preserve the local ecology, many of whom would prefer limiting or prohibiting human access to such parks. We see this dynamic played out in the Bird Sanctuary at Lincoln Park, most of which is fenced off from human activity, in contrast to Montrose Point, where people have access to nesting and roosting areas.

Kaplan, Kaplan, and Ryan (1998) explored a wide range of issues connecting the design of park spaces with the restorative benefits that nature provides to people. Considering how park users move through space and what views are available has important implications for design practices. The study identifies four specific environmental elements that can help users feel comfortable and effective: gateways, trails, views, and places. Gateways are defined as points of transition in partitioned areas. Gateways help by dividing natural areas and providing points of orientation. They suggest the possibility of entering a new area which creates anticipation and the chance to stop and reflect on a journey. Trails are defined as paths through nature for "walking, hiking, biking, skiing, or horseback riding" (p. 89). Trails enable people to come into contact with nature through observation and exploration; this can be a respite for people wanting to escape 'unnatural' landscapes. Views enable people to enjoy nature from a distance. Active looking and processing of views provides a broad overview of a scene. Views of nature have been shown to relieve frustration, increase patience, and improve optimism. Places are defined by their natural and human-made elements, such as, trees, shrubs, flowers, benches, and

footbridges. The patterns and locations of a place's elements contribute to the overall feel of a place. People form relationships to place through familiarity, sentimental attachment, or a sense of ownership.

Identifying Values Associated with Ecological Restoration of Urban Parks

From a theoretical standpoint, the research I conducted for this dissertation contributes valuable data analysis that could be used in building a theory of human-nature relationships in urban settings. It was beyond the scope of the study to build that theory, however, in part because of the framework within which I worked, namely the POE of the restored areas that I led on behalf of the Forest Service and the City Design Center. I applied qualitative analysis to the open-ended interview data that supplemented the parallel analysis of forced-choice and observational data, but I was unable to continue the process of interviewing new park users or re-interviewing previous respondents for further refinement of the values associated with their experience of nature in the restored areas (which, since the interviews were conducted anonymously, would have been possible only by chance encounters or the circulation of a call for research participants in local neighborhoods). In this chapter I have, however, traced the theoretical basis for holding that ecological restoration of urban parks is possible. The definition of ecological restoration that informed the research adopts a vision of such restoration that entails historical authenticity (restoring an area to conditions that had existed in the past or for which it was originally designed) and ecological integrity (establishing conditions that represent the natural ecology—in terms of geography, climate, and plant and animal life—of a region, not necessarily at a specific location) in order to repair damage or degradation that has been caused by human activity.

In closing this chapter, I trace the origins of the list of values that were incorporated into the interview instrument (Appendix B) by highlighting key sources. These values are the following (here I omit the last item on the list, "Other: please describe," which was added to allow respondents to express values that were not listed, and which elicited no additional values to add to the list):

- **BEAUTY**
- **SOLITUDE**
- **TRANQUILITY**
- **RECREATION**
- **HEALTH**
- **CONTACT WITH NATURE**
- **NATIVE HABITAT PRESERVATION/RESTORATION**
- **COMMUNITY AND/OR CITY IDENTITY**
- **PUBLIC LIFE**
- **TOURISM**

I have already mentioned the first key source of the values, Gobster's (2001) case study of Montrose Point in which, working with stakeholder focus groups, he identified four "visions" of nature, which in some respects were destined to represent competing stakeholder interests: nature as designed landscape, nature as critical habitat, nature as recreation, and nature as pre-European settlement. Corresponding to each of these nature visions Gobster identified one or more "values": "Landscape art" for nature as designed landscape; "Uniqueness" and "bird diversity" for nature as critical habitat; "nature appreciation, wildness, special place" and "Balance nature with use" for nature as recreation; and "Biodiversity, endangered species," and "nature experience" as well as "Active (restoration) appreciative" for nature as pre-European

settlement (Gobster, 2001, p. 40). The study not only suggested specific values that were included on the list (recreation, contact with nature, native habitat preservation/restoration), it more generally stimulated my thinking about the values that park users might associate with their use of the four restored areas.

Walker (2004) identified health, community and/or civic identity, and public life as values of urban parks. Walker's brief for the Urban Institute of the Wallace Foundation emphasizes the contribution to a neighborhood's quality of life that an urban park represents. The brief addresses values associated with all urban parks, so some of the values he discussed are unlikely to be associated with ecological restoration in urban parks, such as nurturing youth (primarily through youth-oriented programming) and offering entry-level employment opportunities for low-income residents. On the other hand, the restored areas seem likely to offer benefits to mental and physical health as respites from the stress of city life and places in which to be physically active (other studies confirming the health benefits of green spaces in the urban environment include Maller, Townsend, Pryor, Brown, & St. Leger, 2005; de Vries, Verheij, Groenewegen, & Spreeuwenberg, 2003; and Kaplan, 2001). Moreover, the potential of the restored areas to generate social capital, a value Walker stressed (p. 3), accounts in part for the community-related and public life values on the list. Writing about the Wallace Urban Parks Initiative, Walker noted that it included

> parks foundations, "friends of" organizations, and . . . featured efforts not only to improve major urban parks, create new urban greenways, and construct or reconstruct neighborhood parks, but also to introduce new community arts, recreational, scientific, and cultural programs. (Walker, 2004, p. 4)

Chiesura (2004), in a study of values appreciated by park users in Amsterdam, The Netherlands, also mentioned social capital, but her study emphasized “contemplativeness” and tranquility, and these values are easily associated with being in nature, even in an urban setting. Chiesura also relates these values to mental health, noting that studies show that “natural environments have a positive influence on mental and psychological health” (p. 130). Of the urban park–related values that she tested through a survey using a methodology similar to mine, Chiesura found that relaxation, being in nature, and escaping from the city were the most highly valued benefits of park use. She also tested what she called “emotions,” finding that freedom and “unity with nature” were the most frequently mentioned by her respondents. This reinforced my interest in exploring the potential of the restored areas in Lincoln Park to allow users to be in contact with nature.

Bachin (2000), in a historical overview of values associated with urban parks, mentions several values that informed my list. Under the heading “Parks as Antidote to Urban Ills,” these include beauty and tranquility. The article also mentions recreation, health, and “natural resource conservation” (p. 15), which was another example of a value that I represent by natural habitat preservation/restoration. Under the heading “Parks as Regional Commodities and Sites of Shared Civic Identity,” Bachin emphasized that urban parks had historically and still are tourist attractions that foster economic growth, but more importantly foster civic identity as places where people share experiences or activities. I wanted to see whether the restored areas of Lincoln Park might also offer similar values to users, again supporting the inclusion of community/city identity and public life on my list, perhaps representing “the importance of shaping spaces of civic interaction” (p. 16). Duvall, Gruelle, Hopkins, and Wolske (2005), in a study of an urban park they claimed “does not currently serve [its] community effectively” (p. 1),

touched on several of the values on my list, noting that in urban parks users can "be in contact with nature" and that urban parks . . . "bring a community together . . . positively influence individual well-being . . . [and] strengthen neighborhood social ties" (p. 1).

I close by noting that the association of values with urban parks figured prominently in the *Lincoln Park Framework Plan*. The Framework Plan then introduces what it calls "A Park Ethic" with the following preamble:

> Parks connect us to the wider world of living beings and affirm the unity of our global environment. As gathering places for all people, parks increase our awareness of our common bond and nourish our democratic spirit. In the park we find relief from the tensions of daily life, through the relaxation provided by contact with green grass and trees, or through the exhilaration of physical exercise. The beauty of parks refreshes our senses and enables us to open our minds and our spirits. By preserving, managing and caring for our parks, we have an opportunity to cherish our legacy from the past, to enjoy the present and to leave a real and lasting benefit for the future. (Chicago Park District & the Lincoln Park Steering Committee, 1995, p. 3)

Following this preamble, the Framework Plan adds a series of resolutions or pledges meant to support the realization of the benefits the preamble describes, which admonish park users to "respect and preserve the delicately balanced order of nature," "recognize the obligation of a society to provide the beauty of open spaces and gardens for its people," and "affirm the need of a people for landscape art for the continued growth of the spirit." This final resolution ties into the only value on my list I have not yet mentioned, solitude. As the results of the study, presented in Chapter 4, suggest, some users reported valuing the solitude provided in the restored areas, mentioning spiritual benefits in particular.

Summary

In this chapter I have situated the ecological restorations in Lincoln Park on which I focused my research within the broader ecological restoration movement. Although urban restorations depart in some ways from restorations in wilderness or non-urban areas, in particular because they typically are human artifacts in the first place, they can make it possible to realize goals associated with historical authenticity and ecological integrity by repairing human-caused damage and returning an area to a previous state or to a state that closely resembles a previous state.

The study's results contribute valuable data and analysis to the literature on ecological restoration, and in any case the spread of such an approach to the design and restoration of urban parks cannot be denied and that in itself underscores the need for such studies to help shape the trajectory of park design and use in the future. The results of the research also contribute to our understanding of human interactions and sense of connection with nature, as I explored the influence of ecological restoration on park users by identifying the values that they derive from or associate with the areas and by considering user perceptions of the connection with nature that the restored areas represent. The result is a set of concepts both confirmed by and emerging from the data that contribute theoretical implications to our knowledge of the relationship between humans and nature in urban settings.

The next chapter presents important elements of the case studies of the four areas of Lincoln Park on which the study focuses (or, as suggested in Chapter 1, a single case study with four components) elaborating on the various ways in which they were designed to embody principles of ecological restoration.

CHAPTER THREE

FOUR CASES OF ECOLOGICAL RESTORATION IN LINCOLN PARK

This dissertation focuses on four distinct areas in Lincoln Park that have undergone ecological restoration: the Montrose Point Bird Sanctuary, the Bill Jarvis Bird Sanctuary, the North Pond Nature Sanctuary, and the Alfred Caldwell Lily Pool. Each area has a unique ecological and design history that reflects its geographical and social context, necessitating diverse approaches to planning and design. The site development history and renovation goals described below are based on carefully documented accounts published in Gobster (2002b), who noted that

> The Framework Plan gave strong direction to the development or restoration of natural areas within the park, and studies pursuant to the plan or following from it identified the four areas comprising my case study. Congressional funding for research, planning and design of these natural areas was funneled through my office, and consistent with the participatory process that shaped the Framework Plan we developed project objectives that would help to identify the perceptions and values of various groups interested in each of the sites, use this and a participatory decision making process to develop design alternatives, then evaluate the success of the designs once they have been implemented. (Gobster, 2002b, p. 4)

The work commenced in 1997 and was largely complete by 2002.

In this chapter I present case studies regarding each of the areas, although, as I noted in Chapter 1, the entire dissertation is in effect a case study of ecological restoration in Lincoln Park encompassing all four areas. While not all elements of a full case study are included in this

chapter, my approach is based largely on an account of landscape architecture case studies in Francis (2001). Francis offers the following definition of a case study:

> A case study is well-documented and systematic examination of the process, decision-making, and outcomes of a project, which is undertaken for the purpose of informing practice, policy, theory, and/or education. (Francis, 2001, p. 2)

The dissertation research concentrated primarily on outcomes, again because the research on ecological restorations in Lincoln Park was conducted during the POE process, but indications of the planning and decision-making processes involved are included in Chapter 1 and in the present chapter. As a case study, the dissertation contributes to building a theory of ecological restoration in urban parks, potentially informing answers to what Francis termed "big questions in policy and design," and supporting attempts to "refine or test emerging concepts and ideas" related to ecological restoration as an approach to landscape design in urban parks (Francis, 2001, p. 3):

> Case studies can be used to develop what Kristina Hill calls a "strategic approach" or rule-of-thumb regarding . . . projects from the scale of the site to the region. . . . Findings from case studies on pedestrian or park behavior can be used to predict how activity may take place in similar projects. (Francis, 2001, p. 3; quoting from Hill, 1995)

Appendix D shows a listing included in Francis's account of case study methodology, identifying 22 so-called "critical elements" of a case study, and this dissertation, while not fully treating all of those that are included, provides descriptions, data, and analysis pertaining to nearly all of them. Thus the quantitative and qualitative analyses (including those informed by grounded theory methodology) should be situated in the larger context of a broad case study of ecological restoration in an urban park.

The individual restoration cases are given in an order that corresponds to their geographic order, from the most northerly to the most southerly; see Figure 1.

Figure 1: Aerial View of Lincoln Park

Montrose Point Bird Sanctuary

Montrose Point, which is located in Chicago's Lakeview neighborhood and covers 11 acres, was designed in the 1930s by Alfred Caldwell, a protégé of Prairie School designers Jens Jensen and Frank Lloyd Wright, as mentioned in Chapter 1. An advocate of regionally sensitive

landscapes, Caldwell intended the landscape at Montrose Point to represent a prairie with an open meadow that provides a "broad view" surrounded by savanna and woodland-like "rooms" with "walls" formed by native plants punctuated by openings permitting views of the lake and surrounding park areas, providing a "long view" (Gobster, 2001, p. 40; Figure 2). Unfortunately, the work was not completed when World War II began, and Montrose Point housed a radar station during the war and later served as a Nike missile base as a Cold War defense against an attack on Chicago. A hedgerow of non-native honeysuckle was planted to screen the military base from what was then a heavily used area of the park. The base was decommissioned in the 1970s, when Montrose Point consisted mostly of scattered trees and the honeysuckle hedge. The latter, one of the few plantings of shrubby vegetation in the park, attracted both migrating birds and an avid following of bird watchers, who dubbed it the "Magic Hedge" (Figure 3). According to Gobster (2001, p. 37), birders "regularly counted more than 200 different species of birds there during spring and fall migrations." Open areas had at first been kept mowed following the return of the area to the Chicago Park District, but otherwise there was little maintenance, and once the Magic Hedge became the chief attraction at Montrose Point additional shrubs were planted and grassy areas were mowed less frequently, enhancing the area's value as habitat for migrating birds.

Figure 2: The “Long View” at Montrose Point
Source: Author.

Figure 3: Aerial View of Montrose Point. The Magic Hedge runs from southwest to northeast just left of the center of the image.
Source: Author.

The Framework Plan’s initial goals in restoring Montrose Point were to re-create the historic prairie landscape of Caldwell’s original design, improve and expand wildlife habitat, and replace the vehicular road with a lakefront pedestrian and bicycle path closed to traffic. Indeed,

as a study undertaken by the Forest Service in 1997 that used focus groups discovered, "participants strongly and overwhelmingly stated that nature was a key element in their use and appreciation [of Montrose Point]. Individuals of diverse affiliations saw Montrose as a special natural place" (Gobster, 2001, p. 38). These sentiments might well have supported a full ecological restoration of the point, and some stakeholders hoped to create there a landscape that might have existed had Europeans never settled the area—albeit one that would not have existed at the point itself which, as has been noted, was under water until the early twentieth century. While the site had not yet been fully restored as of 2004–5 (the time of my study), the Framework Plan lists the following goals: (a) "restore [the] historic landscape in [a] manner consistent with [the] original Caldwell design plan," (b) expand wildlife habitat with additional planting near [the] Magic Hedge," and (c) replace [the] road to Montrose Point with a shared lakefront path that is closed to traffic but available to maintenance and security [vehicles; remove] parking and replace with new spaces on Montrose Harbor Drive" (Chicago Park District and Lincoln Park Steering Committee, 2005, p. 33).

Unfortunately, the participatory design process instituted by the steering committee and the Chicago Park District, which involved several focus groups and meetings with stakeholder groups whose interests did not coincide, struggled to find a clear direction (Gobster, 2002b). The Magic Hedge was a sticking point, as birders sought to preserve and expand what had become a sacred icon, historic preservationists wanted it razed in order to restore the broad and long views of the "prairie" landscape that Caldwell had envisioned, and those favoring something approximating ecological restoration wanted the open "prairie" areas left relatively untended while placing more focus on creating habitat that would attract non-avian wildlife as well (Figure 4). These conflicts in park user interests prompted Gobster (2002b) to characterize the approach

to nature at Montrose Point as “a tournament of values” (p. 6).

Figure 4: Montrose Point Prairie Grasses
Source: Author.

The resulting restoration plan gave something to all stakeholders. Caldwell’s design would act as a guide, but the Magic Hedge would remain (Figure 5). The design eventually included a path encircling a central meadow that was indeed planted as a low-growing prairie, and this in turn was surrounded by perimeter trees and shrubs. The Magic Hedge was expanded and even enhanced with a new, shallow pool for songbirds, while a dune was constructed to enhance the beach and add new wildlife habitat. In summary, changes made at Montrose Point as a result of the restoration efforts were as follows:

Habitat Restoration

• Multi-level vegetation planted at the Magic Hedge

• Prairie vegetation planted in the meadow

• Vegetation planted along emerging dunes

• Additional trees planted

New Park Features

• Mowed paths were installed along the meadow edge

• Informational and educational signage was added

• A water feature for use by wildlife was added

Restored Park Features

• Access to fishing at the lakefront

• Vistas to the lake (the “long view”)

Figure 5: View of the Magic Hedge
Source: The Ornophile

Bill Jarvis Migratory Bird Sanctuary

The Bird Sanctuary is located south of Montrose Point, also in the Lakeview neighborhood. Little is known about the origins or designer of the seven-acre sanctuary. Situated on a landfill area along the shore of the lake, the Sanctuary was included in a 1916–1928 expansion of Lincoln Park. Described as a “Bird Sanctuary and Wildflower Preserve” in a 1926 brochure promoting the nearby Lincoln Park Zoo, it was likely developed to supplement the

zoo's avian installations. Surrounded by a tall fence, the sanctuary featured a series of parallel ridges and swales, with two shallow ponds supplied by piped-in water. The landscape was enhanced with flower gardens, fountains, and other ornamentation, with a rustic log cabin for the gatekeeper built at the entrance.

Budget and staffing cuts forced the Park District to close the Sanctuary during World War II and it was largely neglected through the 1960s, when a local Lakeview resident, William Jarvis, who was an avid birder and plant enthusiast, was granted stewardship over the area. Although the interior of the space remained closed to public access, Jarvis and other Lakeview resident volunteers improved the landscape for bird viewing over the next two decades. After old age ended Jarvis's stewardship, however, the site once again deteriorated, becoming overgrown with invasive non-native plants. The Bird Sanctuary seemed doomed when, in 1996, a section of the water pipes that fed the ponds collapsed and was capped off, further reducing its wildlife habitat potential.

The Bird Sanctuary found new life in the Framework Plan and, following its recommendations for restoring the site, birders and nearby residents again began the hard work of restoration. Noting that "the high fence creates a visual intrusion in the landscape," the Framework Plan specified a restoration that would "enhance and enlarge [the] wildlife zone by adding woodland plantings at [the] perimeter of [the] Bird Sanctuary, adding viewing areas and adding informational and educational signage" (Chicago Park District and Lincoln Park Steering Committee, 1995, p. 36). Within this framework, the stakeholders wanted the Sanctuary itself to remain strictly "for the birds," that is, closed to the public. The goal was to provide bird and wildlife habitat that would be relatively free of a human presence while allowing park users to enjoy views of birds and the landscape from the perimeter (Figure 6).

Figure 6: Aerial View of the Bill Jarvis Migratory Bird Sanctuary
Source: Author

To a greater extent than in the other three restored areas, restoration of the Bird Sanctuary depended largely on neighborhood volunteers. An urban anthropologist and documentarian worked over four seasons to create a video in which volunteers shared their ideas and feelings about the need to restore the area, eventually presenting an edited version at a public meeting in 1999 (Gobster, 2002b, p. 8). These dedicated volunteer stakeholders were able to secure a grant of $25,000 to support the hands-on work, during which they eliminated invasive vegetation, removed additional vegetation along the fence that blocked views, and planted more than 40 native plant species throughout the interior. A Park District site analysis also helped, by demonstrating that the Bird Sanctuary was one of the few areas in the park with the potential to provide viable wildlife habitat. These stakeholders subsequently persuaded the Park District to expand the Sanctuary's southern boundary, adding an additional 1.5-acre swale within the fenced-in area, restoring the two ponds (Figure 7), and installing the called-for new woodland

plantings along the perimeter. Even though the interior of the Sanctuary was closed to the public, the restoration's value to users was enhanced by the city's installation of a new wheelchair-accessible viewing platform, informational and educational signage, benches, and winding gravel paths that provided additional viewing angles (Figure 8). Given the Bird Sanctuary's continued status as an area closed to human presence within the fences, Gobster referred to it as a case of "nature as refuge" (2002b, p. 9).

Figure 7: Large Pond at the Bird Sanctuary in the Fall
Source: Lake View Citizens Council

Figure 8: Looking into the Bird Sanctuary from a Viewing Platform along the Perimeter of the Fence.
Source: Lake View Citizens Council

In summary, changes made at the Bird Sanctuary were as follows:

Habitat Restoration

- Size of the area was increased
- A new perimeter fence was installed
- Non-native vegetation was removed
- Woodland vegetation was planted
- Native vegetation was planted
- Dead trees and branches were provided for bird/animal perches
- Wetland area was restored
- Amphibians such as turtles and frogs were reintroduced
- Vegetation was planted as a buffer between the Sanctuary and surrounding park areas

New Park Features

- A wheelchair-accessible viewing platform was installed
- New benches were installed
- A gravel path was installed
- New informational and educational signage was installed

North Pond Nature Sanctuary

North Pond, in the Lincoln Park neighborhood, dates to 1894 and occupies 15 acres. Designed by Olaf Benson in the naturalistic landscape style, dredged out of a low-lying area around a channelized stream, the irregularly shaped, four-hectare pond became a focal point of leisure activities and appreciation of nature. A refectory was built on the pond's north end, providing shelter and a place where people could eat or relax while observing others engaged in boating, fishing (later prohibited), and, in the winter, ice-skating. A casting pier was installed at the pond's south end. Paths meandered through meadows around the perimeter for strolling and picnicking.

Over time, the North Pond area (Figure 9) underwent many changes that altered both the landscape and its uses. In 1916, the refectory was replaced by a smaller building housing a café. In 1947, the wooden casting pier was replaced by a large cross-shaped concrete structure, one of the largest casting piers in the United States. In the 1990s, a large maintenance building that had occupied the southeast corner of the pond was replaced by the Peggy Notebaert Nature Museum, while an upscale restaurant replaced the café.

Figure 9: Aerial View of North Pond Nature Sanctuary
Source: Author

The LP Framework included North Pond because major restoration of the area's natural features was needed to improve water quality and increase and improve wildlife habitat. Supported by $1.25 million from a major federal grant to the Park District aimed at improving or restoring ponds and lagoons, the Lincoln Park Advisory Council established the North Pond Task Force, representing various park-related interest groups, especially neighborhood residents, to interface with the Park District. The Task Force also held design charettes at which stakeholders could preview and critique design elements.

Acknowledging that the "soft edge of North Pond is eroding and lacks appropriate planting," and that the casting pier is "unsightly and out of scale," the Framework Plan called for developing the "pond as one of [the] park's wildlife zones." Other goals: "Regrade and improve pond edges. Plant emergent and water edge vegetation that supports wildlife. Develop pond overlooks, boardwalks, and a new island. Replace concrete pier with [a] structure [that is] in

scale and in character with [the] setting. Restore [the] Park Place restaurant and terrace" (Chicago Park District and Lincoln Park Steering Committee, 1995, p. 40). The Task Force oversaw the process and made sure that public input was included, a process which, among other things, preserved the casting pier against the wishes of the museum, reviving interest in its use. Pond restoration goals included, then, water quality improvement and shoreline restoration of a natural riparian zone that necessitated removal of many shade trees along the banks. The upland areas around the pond along the south end and the west shore were planted as prairie gardens accessible by winding nature trails (Figure 10). Pond viewing areas were developed to provide visual access while protecting the pond's shoreline (Figure 11).

North Pond is now, according to the Lincoln Park Conservancy, "a thriving natural ecosystem" with over 150 species of native plants including wildflowers and grasses that pay homage to Illinois's prairies (Lincoln Park Conservancy, 2001). Interestingly, the Conservancy notes that North Pond represents, at least in part, "Chicago's landscape before European settlement including plants common to prairies, savannas, woodlands, and wetlands" (Lincoln Park Conservancy, 2001), thereby expressing one of the values identified in Gobster's case study of Montrose Point, namely "nature as pre-European settlement landscape" (Gobster, 2001, p. 35). To this characterization Gobster would also add the label "nature as foreground–nature as background" (2002b, p. 7) due to its proximity to upscale neighborhoods and accommodation of both outdoor activities in a natural setting and its restored natural beauty and symbolic value.

Figure 10: Trail at North Pond Nature Sanctuary.
Source: Author

Figure 11: View of North Pond Showing Restored, Protected Shoreline.
Source: Author

In summary, changes made at the North Pond area included:

Habitat Restoration

• Water quality was improved

• Shoreline area was restored

• Native prairie vegetation was planted

• Hazardous and diseased trees and shrubs were removed

New Park Features

- Gravel and woodchip paths were installed around the pond
- Seven stone overlooks were installed around the pond
- Wheelchair-accessible paths to three of the stone overlooks were installed
- Viewing plaza was installed at the north end of the pond
- New benches were installed around the viewing plaza
- Wrought iron fencing was installed around the viewing plaza

Alfred Caldwell Lily Pool

In contrast to North Pond, with its history of active public use, the Lily Pool, situated directly to its south but separated from it by a major arterial road, provides a secluded retreat for park users (see Figure 12 for an aerial view). This unique area, which opened in 1889, was designed by Carl Stromback as a heated outdoor pond in which to grow and display exotic water lilies and other fragile plants. Chicago's cold winter climate was a constant challenge, however, and in the 1930s Alfred Caldwell redesigned it as a regionally sensitive landscape that was consistent with his Prairie School approach to Montrose Point by installing native plants and stratified limestone rock formations that represented the headwaters of a Midwestern prairie stream. Caldwell sought to create "a cool, refreshing, clear place of trees and stones and running water" (Lincoln Park Conservancy, 2011).

Figure 12: Aerial View of the Alfred Caldwell Lily Pool.
Source: Author (?)

The Lily Pool deteriorated over time with changes in land use and was taken over by the Lincoln Park Zoo in the 1950s in order to breed birds for its avian exhibits. Renamed the Rookery for this purpose, vegetation management and preservation of water quality lapsed. Caldwell's redesign of the site as a regionally representative landscape feature, already ill-served by the transition to the Rookery, was disturbed still further when a 1960s rehabilitation plan increased the limestone rockwork extensively.

When the Lincoln Park Zoo relinquished its use of the Lily Pool in 1997, historic preservationists, birders, and local civic groups rallied around it. The final design, which emerged from a participatory design process, sought to restore both natural habitat and Caldwell's unique design features. The project included a new entryway with a prairie-style sign that was seen as an expression of the spirit of Caldwell's design aesthetic. The waterfall and step-stone pathway that highlighted Caldwell's original plans were restored. Access was

expanded by an ADA-compliant pathway that was laid around the backside of the site. To accommodate this new pathway, the eastern edge of the site was expanded, which also achieved the goal of enlarging the habitat area. Architecturally distinctive pavilions (Figure 13 and a limestone council ring (Figure 14) at the south end of the site were restored. The organization Friends of Lincoln Park had spearheaded the fundraising effort, raising more than $2.4 million to implement the restoration, which once again provided a secluded garden for public use. Given the affection for its design and beauty that he observed in the planning and implementation of the restoration, Gobster (2002b) termed the Lily Pool "nature as sacred garden" (p. 5).

Figure 13 Viewing Pavilion at the Lily Pool
Source: Lincoln Park Conservancy

Figure 14: The Council Ring at the Lily Pool
Source: Lincoln Park Conservancy

In summary, changes made at the Lily Pool included:

Habitat Restoration

• Selective tree removal

• The wooded character was maintained

• Bird habitat was restored

• Diseased and invasive trees were removed

• Fish to for wading birds to eat were restocked

Historic Restoration

• Vegetation that was in the original Caldwell plan was planted

• Two pavilions were rebuilt

• Fullerton Avenue gate was rebuilt

• Incompatible stone was removed

New Park Features

• Wheelchair-accessible south and east paths were installed

Summary

I this chapter I have presented the four individual cases of ecological restoration in Lincoln Park that form the subject matter of the dissertation. Although the four restoration projects differed with respect to unique ecological, historical, and design features in the respective areas, all represented attempts to restore urban park areas to conditions that had existed previously in a way that respected both ecological integrity and historical authenticity. In Chapter 4, I present the empirical research conducted in these areas, indicating the extent to which users perceived the projects as places that represent their values and provide them with opportunities to be in contact with nature.

CHAPTER 4

METHODOLOGY, DATA, AND RESULTS

This chapter presents the methodology adopted for the dissertation, describes and presents the data collected, and discusses the results. As mentioned in Chapter 1, this study falls within the framework of a POE conducted by the U.S. Forest Service, North Central Research Station–Chicago, of the United States Department of Agriculture, of the four cases of ecological restoration in Lincoln Park that form the subject matter of the dissertation. The Forest Service came to the City Design Center of the University of Illinois Chicago (UIC) for assistance with the POE and I was assigned the role of lead investigator in that effort (see Appendix A for a letter granting me permission to use the data I collected for my own research). The data I describe in this chapter were therefore collected as part of the Lincoln Park Evaluation Study, City Design Center, College of Architecture and the Arts at UIC, and include both data collected specifically for the POE and data I collected to address this dissertation's research questions.

For the POE we collected two sets of data: responses to an interview instrument (Appendix B) and observational data (see Appendix C for the observation instrument and related documents). The interview instrument that was developed for the Forest Service–City Design Center study sought to extend public participation beyond the planning and implementation phases of the project—during which such participation was extensive—to understand if and how the four restored areas fulfilled the needs and uses of its human users. The present study, however, represents my interest in understanding the values that Lincoln Park users associated with urban parks given their experiences in the restored areas, which included a particular focus on the extent to which the ecological restorations make it possible for park users to experience or be in contact with nature. These research interests coincided to some extent, of course, so this

chapter reports POE data that were relevant to my dissertation research. The chapter also includes background information on the sampling procedures, sample demographics, and other components of the study in order to provide the full context within which I conducted the dissertation research.

Following descriptions of the methodology and data collection procedures, the chapter presents both the quantitative and qualitative results of the study, including data collected from open-ended interview questions, and discusses the implications of the findings for the research questions that motivate the dissertation.

Methodology

The research for this dissertation was carried out using a mixed-methods approach that approximates the *concurrent triangulation* strategy identified by Terrell (2011), combining quantitative and qualitative data and subsequent analysis within the context of a modified case study methodology and a modified grounded theory methodology (GTM). Quantitative data were gathered from behavioral observations of park users in the four ecologically restored areas and trace observations in the four areas as well as responses to forced-choice survey questions that asked respondents to identify and rank the values they associated with park use. The behavioral and trace observations were undertaken primarily to support the Forest Service–City Design Center POE, but some of the behavioral data collected were relevant to the dissertation research. The forced-choice survey responses were incorporated into the POE but were designed primarily to obtain data on the values park users associated with urban parks and the restored areas. Qualitative data were gathered through interviews using open-ended questions that supplemented other elements of the surveys. Initial coding was conducted on responses to open-ended

interview questions, but it was outside the framework of the study to pursue further analysis of the data (see Charmaz, 2006, for the GTM approach that applies most aptly to this phase of the research).

The study design diverged in several important respects from formal GTM, insofar as the values that were incorporated into forced-choice survey questions were developed based on my reading of independent work conducted by Paul Gobster of the Forest Service and my review of the relevant literature prior to data collection, so they do not correspond to themes that emerged from raw data (see Chapter 3 for a detailed account of the development of the list of values). Moreover, the interviews were conducted with anonymous users at the four Lincoln Park sites who were asked to be interviewed spontaneously and did not develop into the extensive, in-depth conversations that GTM favors and from which themes are allowed to emerge through coding. Moreover, no follow-up interviews were conducted and there was no attempt to enrich the data with ethnographic work within the sample population, as there was no funding available for extending the study beyond the framework of the POE. Although a potentially interesting theme emerged from the coding process, it was not possible to explore that theme further (I identify this emergent theme later in this chapter and discuss it further in Chapter 5). It would be possible, however, to extend the research reported and discussed in this dissertation using GTM through the abovementioned procedures, so the dissertation could contribute to a broader GTM study of ecological restoration in urban parks should there be interest in doing so with the proper time and funding.

As noted in Chapter 1 and explained at greater length in Chapter 3, both the quantitative and qualitative research conducted for this dissertation were situated within the larger framework of a four-part case study of the four sites in Lincoln Park. Although the study included most of

the elements of a case study in landscape architecture for each of the four sites (Francis, 2001, p. 13; Appendix D), some elements that are typically included in a landscape architecture case study had already been completed prior to the commencement of my work during the planning and design phases of the project, as facilitated by the Forest Service. Still, apart from those elements, the dissertation can be read as a broad case study of ecological restoration in urban parks (comprising four small-scale cases), focusing on the values users associate with the restorations as well as the extent to which users reported being in contact with nature while in the restored areas.

In order to facilitate the presentation of the data and results in this chapter, for the convenience of readers I reiterate the two research questions that motivated this dissertation:

1. What values do park users derive from or associate with the ecologically restored park areas in Lincoln Park? Which values are most important to them and why?
2. Do park users perceive the Lincoln Park ecological restorations as opportunities to experience or be in contact with nature, and why?

Instruments and Procedures

Behavioral observations, behavioral trace observations, and the interview instrument were designed to facilitate the POE in light of the research problem and questions that were raised by the Forest Service, but the interview instrument also included questions that address the research questions that motivate this dissertation, including the forced-choice questions pertaining to values that users associated with park use (of interest to both the POE and this dissertation) and the open-ended questions in which users were invited to expand on their answers to the forced-choice questions (of interest primarily to the dissertation). All instruments

were piloted and revised as necessary (see Appendix E for a summary of the pilot data).

The data were collected during three seasons: Spring, from March 1–May 31; Summer, from June 1–August 31; and Fall, from September 1–November 30, over two calendar years, 2004 and 2005. Specifically, data were collected from August 29, 2004 through November 30, 2004 and March 1, 2005 through August 28, 2005. The Lily Pool was closed in 2005 until April 29, so we began collecting data after April 29th for that study site.

Behavioral Observations

The observation form was designed to collect information on social group composition, type of activity, both primary and secondary activities, the location of these activities, items carried by individuals using the park areas, and observable demographics (see Appendix C for the observation instrument.) The observer also recorded representative activities using a digital camera.

Twelve observation periods were established to represent a wide variety of times of park use during the spring, summer, and fall as well as days of the week and times of day. Observations were scheduled on two weekdays and two weekend days for each of the three warm-weather seasons. Each observation period was distributed over two time periods, 8:00 a.m. until 2:00 p.m. and 2:00 p.m. until 8:00 p.m., over the course of any given observation day. If the weather was inclement, the observations were made on the next similar day of the week, on either a weekday or a weekend day. The observations were recorded along predetermined paths that allowed views of the all areas at each of the four study sites (see Appendix F for the observation schedule).

At Montrose Point, the observation path ran in a clockwise fashion and worked

concentrically inward to observe the park area and sub-areas in the most efficient and effective manner given the dense foliage. At the Bird Sanctuary and Lily Pool, the observer walked in a counterclockwise direction on the walking paths. The observer at North Pond walked along the path around the pond, moving in a clockwise direction (see Appendix G for the sampling procedure related to the observations).

Behavioral Trace Observations

While recording the behavioral observations, the observer also recorded behavioral traces on a map of each of the study sites. Behavioral traces included objects left at the site and changes to the site such as paths made by walking over landscaped areas. I do not include these data here, however, because they were largely irrelevant to addressing the research questions.

Interviews

Interview questions were designed to gather information on (a) users' reasons for visiting the restored areas (which was integral to the POE but also occasionally useful to the dissertation), (b) the values users associated with urban parks and the study sites, and (c) their knowledge of the renovations of the sites as well as their assessments of these changes (again, integral to the POE but occasionally useful to the dissertation). Basic demographic data also were collected (see Appendix B for the interview instrument.)

The interview instrument was designed so that the questionnaire could be answered in approximately 15 minutes. The interviews included both forced choice and open-ended questions. All but one question was the same for all of the sites: the question about changes made at the sites was tailored to each of the study areas.

The interviews were conducted at the same time as the scheduled observation sessions. A total of 80 interviews were conducted: 15 at Montrose Point, 15 at the Bird Sanctuary, 35 at North Pond and 15 at the Lily Pool. More people were interviewed at North Pond because we encountered a substantially larger number of users there.

As the interviewer I followed the same predetermined routes at each of the study sites as the observer, except that I moved in the opposite direction. Each first adult user (18 years or older) encountered along the path was approached and asked for an interview until the quota for the day was met. The day's quota was determined to reflect the time of day, the day of the week, and the season. The ages of individuals interviewed were approximated visually by the observer and later confirmed in interviews. When adult users consisted of couples or larger groups, only one person was interviewed: for couples, the interviewer alternated from male to female users with each successive interview; if three people were together, the interviewer asked for a volunteer. Individuals who indicated that they were first time-visitors or tourists or who did not speak English—there were six such people—were not interviewed further.[1] People riding bicycles or in-line skates or those who were jogging, speaking on a cell phone, were in groups of more than three people, or were transients (people who were clearly homeless) were not approached because they were passing by at too high a speed or were otherwise preoccupied.

Records also were kept of the two people who declined to be interviewed. It is notable that several men at Montrose Point avoided the interviewer by walking away from her before she could approach them. It is possible that a female interviewer may have been viewed as an unwanted intruder in this gay cruising area.

The interviews lasted from 5–45 minutes, with an average time of 14 minutes. The responses to the open-ended questions were tape-recorded and transcribed. As I have

[1] Budgetary constraints prevented us from conducting multilingual interviews.

acknowledged, the average interview time indicates that the interview data were not as rich as is typically desired for a grounded theory study, although a few lasted beyond 30 minutes. Still, the analysis of the responses to the open-ended questions fit within the framework of GTM as described in Charmaz (2006) as initial coding that informed my analysis of the data results and generated an emerging theme.

Data Analysis and Results

All behavioral observation and forced-choice interview data were entered into Excel spreadsheets. Frequency analyses were calculated for all behavioral observation data and forced-choice interview data.

Open-ended questions were content-analyzed. To develop the content categories and coding reliability, I analyzed ten randomly selected interviews with the help of a research assistant (see Table 1). A 91% level of reliability was achieved (percent of agreement). Disagreements were discussed and resolved. A content analysis coding form was devised in light of this analysis (see Appendix H for the coding form). The research assistant analyzed the remaining interviews for content and entered all of the data into Excel spreadsheets to calculate frequencies.

Table 1: Coding for Randomly Selected Questionnaires and Forced-Choice Interview Responses

Res No	Site	Frequency of Use	Activity	Like Best	Like Least	Values (most imp is **bold**)	Changes
FA01	BS	2-3x/wk (less in winter) for > 5 yrs	walking, studying	wild flowers and veg-- interested in plants; remind of home in CT	don't see enough birds and animals--could introduce more so you could see nature	***beauty*** , contact w/ nature; habitat restoration	Noticed expansion of area; ponds; benches; more diverse plants. From list- At first didn't like increased size (robbing space) but now he does; like view through fence; like all of stuff on list--platform, signs add history; Nothin least imp; Just keep improving it
FA02	MP	2x mo. For 8 yrs	a favorite spot of mine along the lakefront	size- large enough for wild nature; view of the city; beach for dogs	unmanicured beach area (dune)?-- it's undefined	contact with nature; solitude; **beauty**	Noticed expansion of sanctuary; from list habitat restoratoion is most imp; signage and paths least imp; would like to see dune a little more designed/defined
FA03	NP	2x/week for a less than 1 year	jog through on way to beach	open, nature	dark at night, potholes in field	beauty, ***tranquility*** , nature, city identity	Not noticed changes, water quality, gravel paths, benches, from list; iron rail least imp; provide dim walking lights
FA04	NP	2x/wk 4 yrs.	w/dog, shady, pretty	trees, being in the park, pond, ducks	bums--unaesthetic w/garbage; intimidating	***beauty*** , tranquility, nature, recreation	Overgrown plantings, fountain, bench; from list tree removal, gravel and chip paths allow a little escape
FA05	NP	3-4X/WK FOR 25 YRS	lives here (in neighborhood?) It's my pond; for bird watching	wild landscaping, birds, fish, nature, it's my refuge	litter, too many people	***contact with nature***	noticed overall restoration great job; from list habitat restoration; all of the changes are important; maintenance is imp
FA06	NP	1st time	fishing	quiet, birds, turtles, fishing	nothing	***beauty*** , health (fresh air)	from list- like benches; like it like it is
FA07	LP	2x/yr for 3 years	nice weathure; sun; like a refuge for me	seats, the structure (pavilion?)	still can hear outside noise	***solitude*** , health, recreation	vegetation; from list pavilions, Fullerton gate are imp provide a nice middle ground; would like to better soundproof area
FA08	NP	everyday summer/1x/wk. winter for 15 yrs	1 of best parts of LP; live very close to it	good for kids, the water, turtles, nature, it's unique	bird poop	***community and city identity*** , beauty, tourism	Noticed bird restoration area; from list like paths, stone overlook, access paths, benches, fence; **habitat least important; clean wather most imp**; so is accessibility closeness to water; Like E side more than W side--provides a diff experience
FA09	NP	1x/wk when good weather	Nice weather; to read for an hour	can sit away from street; shelter from windshade, view, ducks	would like a bench that didn't face path or street so could concentrate more when I read	habitat restoration and wild diversity is important but not to me personally, ***tranquility*** , contact with nature, health	Noticed fenced off area with transplants' from list like gravel path; least imp is viewing platforms and fence; would like benches not facing the path
FA10	NP	2x/wk < 1 yr	enjoy serenity and end of summer	nature, not crowded, solitude, outdoors	no bathrooms	***solitude, tranquility*** , contact with nature, public life	Not familiar with changes; imp changes would be water qual, removal of haradous trees;

Chi Square (χ^2) tests of significance were performed for demographic and observation data. The interview data generally had too many small cells to perform χ^2 analyses. When possible and logical, categories were collapsed and χ^2 analyses were performed.

I report the results of the data analyses first by providing an account of the users of the park identified during observations and interviews, then a presentation of the observation data, and finally a presentation of the interview findings. Again, although most of the data involved in observations were collected specifically to address Forest Service–City Design Center interests in conducting the POE, and the forced-choice questions that I devised were also considered part of the POE, I include many of these data because they contribute to a representation of the broader context in which I conducted my dissertation research and because in many cases they proved relevant to addressing my research questions. I do not include behavioral trace findings here because they were largely irrelevant to addressing the research questions. Although all the data were collected and recorded at the four respective restored areas, here I report primarily

aggregated data that apply across the four areas.

Observation Data

Users (observations). A total of 1,042 users were observed at the four restoration sites over the course of the observation periods. As anticipated, the observed park area users were overwhelmingly visitors (n=992; 96%). Park staff and volunteers were observed only 1% (n=23) of the time. “Transients,” that is homeless people, identified because they had all their belongings with them, were observed 3% (n=27) of the time (see Table 2).

The observed park users overall were primarily adults over 18 years of age (n=919; 88%). The preponderance of adults in the observation sample is not surprising given their preponderance in the households living in the city neighborhoods adjacent to the renovation areas. Only 6% (n=60) were youth, ages 6–12 years, children under 6 years of age (n=39; 4%), or teenagers, ages 12–18 years (n=24; 2%). A χ^2 test to assess the differences between the ages of park users for the four renovation sites did not yield statistically significant results (see Table 3).

Overall, users were predominantly White/Caucasian (n=812; 79%), with Latino (n=84; 8%), Black/African American (n=77; 7%), and Asian/Pacific Islander (53; 5%) comprising the rest. The research assistant was unable to identify the race of 16 (2%) observed park users (see table 4).

A χ^2 analysis of the races of park users by restoration area reveals significant differences (χ^2=39.79, $p<0.0000$). Caucasians were observed less frequently using Montrose Point ($p<0.0072$), whereas Latinos ($p<0.0003$) represented a much larger share of Montrose Point users when compared with those in the other restoration areas. Black/African Americans were observed using North Pond ($p<0.0044$) more frequently than using the other areas, whereas

Latinos were less frequent at North Pond (P<0.0000) than at other areas. The prevalence of White/Caucasian users is likely to be explained by their prevalence in the neighborhood areas that are immediately adjacent to the renovation sites. Similarly, differences in the frequencies of observations of Black/African American and Latino users may be explained by differences in the distributions of these races in the neighborhoods near the renovation sites.

On the whole, more males (n=589; 57%) than females (n=448; 43%) were observed utilizing park areas. The research assistant was unable to assign a gender to five observed park users (0.5%). A χ^2 analysis of gender by restoration site proved significant (χ^2=55.36, p< 0.0000). The ratio of males to females is significantly smaller at North Pond (p<0.0001) and the Lily Pool (p<0.0054), but the proportion of males to females was significantly higher at Montrose Point (p<0.0000). The large percentage of males at Montrose Point is likely explained by its function as a gay cruising area (see Table 5).

Table 2: Park User Status

PARK USER ACROSS PARK AREAS			TOTAL	%
1	PV	PARK VISITOR	992	96%
2	PS	PARK STAFF/VOLUNTEER	23	1%
3	TR	TRANSIENT	27	3%
TOTAL			1042	100%

Table 3: Park User Age Groups

AGE GROUP ACROSS PARK AREAS			TOTAL	%
1	C	CHILD (UNDER 6)	39	4%
2	Y	YOUTH (6-12)	60	4%
3	T	TEENAGER (12-18)	24	2%
4	A	ADULT (OVER 18)	919	90%
5	?	DON'T KNOW	0	0%
TOTAL			1042	100%

Table 4: Park User Racial Distribution

RACE ACROSS PARK AREAS			TOTAL	%
1	W	WHITE	812	78%
2	B	BLACK/ AFRICAN AMERICAN	77	7%
3	A	ASIAN/ PACIFIC ISLANDER	53	5%
4	L	LATINO	84	8%
5	?	DON'T KNOW	16	2%
TOTAL			1042	100%

Table 5: Park User Gender

GENDER ACROSS PARK AREAS			TOTAL	%
1	M	MALE	589	57%
2	F	FEMALE	448	43%
3	?	DON'T KNOW	5	0.5%
TOTAL			1042	100%

Behavioral observations. Primary and secondary activities of park users as well as items carried were observed in each of the restoration areas (as noted, however, I report no behavioral trace data in this chapter).

Overall, the most frequently observed primary activity (see Table 6) was walking (n=561; 54%), followed by standing (n=180; 17%) and sitting (n=140; 13%). The most frequently observed secondary activity (see Table 7) was talking (n=240; 45%), followed by gazing at the landscape/prairie (n=95; 18%) and walking or otherwise exercising dogs (n=79; 15%).

At North Pond and Lily Pool the most frequently observed primary activities were the same as for the sample overall. At Montrose Point, however, bicycling (n=23; 10) was the third most frequently observed primary activity, while at the Bird Sanctuary sitting (n=11; 7%) and standing (n=9; 6%) were reversed, with sitting the second most frequently observed behavior and standing the third most frequently observed behavior. Because there are so many small cells, a χ^2 test of significant differences between these findings could not be performed. To assess these

differences, the primary activities were grouped into two categories: *active*—an activity that engaged movement between locations; and *passive*—an activity involving no movement between locations. The active category included walking, jogging, climbing, bicycling, roller-skating, riding a scooter, and stretching. The passive category included standing, sitting, and reclining. Table 8 shows the distribution of active and passive activities by park area.

The distinction between active and passive park use we applied in this study diverged from the typical practice for studies of park use. For example, in Central Park Conservancy (2011), walking was defined as a passive use of Central Park in New York City:

> **Active recreation** is generally defined as forms of recreation that primarily involve physical activity—such as sports, exercise, and playground use—and that often require dedicated facilities.
>
> **Passive recreation** refers to more subdued activities, such as taking a walk, reading a book, picnicking, bird-watching, or visiting the zoo, that generally include observation or passive enjoyment of one's surroundings. (Central Park Conservancy, 2011, p. 24)

One key difference between my study and the abovementioned Central Park study is that my focal distinction among user activities was between primary and secondary *activities*, a distinction that was developed for the purpose of the Forest Service–City Design Center POE. The active/passive distinction was then applied within this category, and I defined walking as a primary activity, so users who were walking to or from the site of a secondary activity were classified as using the park for that secondary activity, which varied in terms of physicality. More importantly, the sponsors of the POE were interested in focusing sharply on the four restored areas, so walking was counted as an active activity because it involved movement from one place to another to accommodate the POE. Moreover, the Central Park study's distinction

was defined in terms of active and passive *recreation*, not activities, and recreation was one of the ten values included in the list of values that informed the forced-choice interview questions. I therefore wanted to allow users who selected recreation as one of the values they associated with being in a given restored park area to characterize recreation in their own terms.

Table 6: Distribution of Primary Activities across All Restored Areas

Primary Activities Across Park Areas		**Total**	%
	Standing	**180**	**17%**
	Sitting	**140**	**13%**
	Reclining	**13**	**1%**
	Walking	**561**	**54%**
	Jogging	**63**	**6%**
	Bicycling	**67**	**6%**
	Other Actvities	**18**	**2%**
Total		**1042**	**100%**

Table 7: Distribution of Secondary Activities across All Restored Areas

Secondary Activities Across Park Areas		**Total**	**%**
	Gazing - Bird/Animal	**20**	**4%**
	Gazing - People	**20**	**4%**
	Gazing - Land/Prairie	**95**	**18%**
	Gazing - Art Prod/Photo Take	**6**	**1%**
	Reading	**22**	**4%**
	Eating	**6**	**1%**
	Talking	**240**	**45%**
	Fishing	**7**	**1%**
	Feeding Animal/Bird	**17**	**3%**
	With Dog	**79**	**15%**
	Other Seconday Activities	**19**	**4%**
Total		**531**	**100%**

Table 8: Distribution of Active and Passive Activities by Park Area

	Montrose Point		Bird Sanctuary		North Pond		Lily Pond		Total	
	number	%	number	%	number	%	number	%	number	%
Active	179	78.9%	129	84.9%	323	60.1%	75	61.0%	706	67.9%
Passive	48	21.1%	23	15.1%	214	39.9%	48	39.0%	333	32.1%
Total	227		152		537		123		1039	100.0%

Frequency of active vs. passive users by park area.

Active users outnumbered passive users in every park area, and a χ^2 test of differences between active and passive activities for the four park areas was significant (χ^2=50.13, p<0.0000). The analysis indicates that the number of active park users at North Pond was significantly smaller compared with users in the other restored areas (p<0.0000). Active users were a significantly greater portion of users at the Bird Sanctuary (p<0.0000) and Montrose Point (p<.0001).

Talking and gazing at the landscape/prairie were the two most frequently observed secondary activities at all four restored areas. However, the next most frequent secondary activity that was observed varied by site. At the Bird Sanctuary and North Pond, walking or exercising dogs remained the third most frequent (n=23, 34%; n=52; 16%), as observed overall, whereas at Montrose Point and the Lily Pool gazing at animals (n=11, 16%; n=4, 6% respectively) was the third most frequently observed secondary activity. A χ^2 statistical analysis of the frequency of secondary activities for the park areas was not possible because of the small cell sizes.

Since several of the secondary activities involved interacting with “something,” observations of these activities were grouped into three categories: interacting with nature (gazing at birds or animals, gazing at the landscape/prairie, and feeding animals/birds), interacting with people (gazing at people and talking) and interacting with dogs. These groups included 471 (45%) of the 1042 observations. The following table shows the distribution of

observations.

Table 9: Secondary Activities That Involved Interacting

	Montrose Point		Bird Sanctuary		North Pond		Lily Pond		Total	
	number	%	number	%	number	%	number	%	number	%
Nature	29	48.3%	20	35.1%	72	24.5%	20	35.1%	141	30.1%
People	29	48.3%	37	64.9%	168	57.1%	37	64.9%	271	57.9%
Dogs	2	3.3%	0	0.0%	54	18.4%	0	0.0%	56	12.0%
Total	60		57		294		57		468	100.0%

A χ^2 test of the interaction data for the four restoration sites (see Table 9) yielded statistically significant results (χ^2=49.48, $p<0.0000$). Interaction with nature was observed significantly less frequently at North Pond ($p<0.0276$) and much more frequently at Montrose Point ($p<0.0002$) when compared with the other sites. There was no significant difference regarding interaction with other people by park area. Interaction with dogs was found to be significantly greater at the Bird Sanctuary ($p<0.0000$) and less so at the Lily Pool ($p<0.0003$) and Montrose Point ($p<0.0029$).

Sub-area observations. Prior to collecting data, we divided each of the four restored park areas into sub-areas (see Appendix G) and conducted analyses of the observations in these sub-areas to facilitate the assessment of the appropriateness of use of these areas for the POE. Although these data are included in the abovementioned aggregated reports on activities in the four areas, and disaggregating them by sub-area is irrelevant to the dissertation, some of these observations are worth reporting because they are relevant to the research questions.

At Montrose Point, walking was the most frequently observed primary activity, followed by standing, in all sub-areas except the Outer Path, where bicycling was the second most frequent activity observed. Talking was the most frequently observed secondary activity at all four sub-areas, but gazing at the landscape or birds were close seconds at all sub-areas except for

the beach path. The number of people carrying binoculars was largest in the Lower Meadow followed by the Magic Hedge, where the number of people who were bird- or animal-watching also was the largest. There was considerable engagement with the landscape and wildlife, especially in the Lower Meadow and at the Magic Hedge.

At the Bird Sanctuary we observed very little bird-watching, and the Viewing Platform was used very infrequently. Because so few people, only four, were observed, few conclusions can be drawn except that this area during observation periods was underutilized. It is possible that the Viewing Platform is used with greater frequency during bird migrations, or that the platform's visibility is obscured by the sanctuary itself, the maintenance building between the platform and the beach, and surrounding trees and shrubs. The various paths that formed the other four subareas appeared to be used during the observation period primarily as means of transit, most likely to other areas of Lincoln Park, but this is perhaps not surprising since the bird habitat area of the Bird Sanctuary is off limits to visitors, by design. The general absence of bird-watching may have been due to there typically being few birds to see during the observation periods or because no bird migrations were occurring during these times.

In North Pond the most frequently used sub-areas were the Paved Path and Fenced Path areas (which were also paved), the gravel path, and the Pond Edges. With the exception of the Casting Pier and the Viewing Plaza, the most frequent primary activity by far was walking, followed by standing and sitting combined, jogging, and bicycling. At the Casting Pier and Viewing Plaza, standing was the most frequent primary activity, followed by sitting. Regarding secondary activities, talking was the most frequently observed, except in the Restoration Areas and the Viewing Plaza. At the Viewing Plaza and Restoration areas, gazing at the landscape was the most frequently observed secondary activity. Similarly, there were almost as many people

gazing at the landscape at the Pond Edges as there were people talking.

At North Pond those areas that were designed explicitly for engaging with the landscape, the Restoration Areas, were used as intended. The Casting Pier, while not used only by people who were casting, is a particularly good spot for engaging with the landscape. The only unintended activity observed, albeit not very frequently, was feeding the birds and animals, particularly at the Fenced Path areas, the Pond Edges, the Restoration Areas, and the Viewing Plaza.

Of the seven sub-areas of the Lily Pool, except in the Pavilion Area and the Council Ring, walking was the most frequently observed primary activity. Both the Pavilion and Council Ring are destination nodes. Not surprisingly, then, the most frequently observed activities at these two sub-areas were standing and sitting at the Pavilion and standing at the Council Ring. The most frequently observed secondary activity was talking followed by gazing at the landscape, while gazing at the landscape was the most frequently observed secondary activity in the Pavilion Area. In the South West sub-area people were observed gazing at wildlife rather than at the landscape, and there were no secondary activities observed on the Zoo Path.

Interview data

Of the 80 individuals interviewed across the four park areas, the demographic findings were similar to those for the observation data. There were more men than women: 61% (n=43) and 39% (n=37), respectively. A large majority of the respondents were White/Caucasian (n=69; 86%), with 31–40 years of age (31%) the most frequently reported age group. Compared with the population of the City of Chicago, the sample was well-educated and affluent, with 87% (n=70) having attained some college education, and 78% (n=63) reporting incomes of $40,000

and higher (see Tables 10–14).[2]

Table 10: Interview Respondent Gender Distribution

GENDER	TOTAL	%
MALE	49	61%
FEMALE	31	39%
TOTAL	**80**	**100%**

Table 11: Interview Respondent Racial Distribution

RACE	TOTAL	%
WHITE	69	86%
BLACK/AFRICAN AMERICAN	4	5%
ASIAN/ PACIFIC ISLANDER	1	1%
LATINO	3	4%
NO ANSWER	2	3%
OTHER	1	1%
TOTAL	**80**	**100%**

Table 12: Interview Respondent Age Distribution

AGE GROUP	TOTAL	%
18-24	7	9%
25-30	12	15%
31-40	25	31%
41-50	14	18%
51-60	13	16%
61-70	6	8%
70+	3	4%
TOTAL	**80**	**100%**

[2] At the time of the study, the median household income in the United States was $38,625. Twenty-five percent of persons 25 years of age or older had obtained at least a bachelor's degree (US Census Bureau and County Quick Facts, 2000).

Table 13: Interview Respondent Educational Attainment Distribution

EDUCATION	TOTAL	%
GRADE SCHOOL	3	4%
HIGH SCHOOL	7	9%
COLLEGE -2YR	10	13%
COLLEGE - 4YR	31	39%
GRADUATE SCHOOL	29	36%
TOTAL	**80**	**100%**

Table 14: Interview Respondent Income Distribution

INCOME GROUP	TOTAL	%
under $10,000	3	4%
$10,000 - 19,999	5	6%
$20,000 - 29,999	5	6%
$30,000 - 39,999	9	11%
$40,000 - 49,999	12	15%
$50,000 - 74,999	18	23%
$75,000 - 99,999	5	6%
$100,000 - 149,999	8	10%
$150,000 - 199,999	5	6%
$200,000+	5	6%
NO ANSWER	5	6%
TOTAL	**80**	**100%**

Location of Respondents' Residence

Zip codes in which respondents' places of residence were located were analyzed to assess the relationship between respondents' homes and the study sites (see Figure 15 for a map of user residence distribution by zip code). With the exception of Montrose Point, approximately half or more of the respondents lived in zip code areas that were adjacent to the renovation sites, with the largest proportion of nearby residents recorded at North Pond (n=21; 60%). Again with the exception of Montrose Point, approximately three-quarters of respondents lived in zip codes that were either adjacent to or very close to the renovation sites, with North Pond again (n=28; 80%) having the largest number of respondents who lived either adjacent to or within one zip code of

that area. Montrose Point respondents were drawn from a wider range of zip codes, hence from a wider area, when compared with the other three renovation areas. This may be attributable to its popularity among birders, who sometimes respond to blog postings and the like reporting a particular species of bird and might be willing to travel farther to see them. Although the Bird Sanctuary attracts birders as well, since the bird habitat there is entirely fenced in, it is more difficult to see birds except perhaps during a migration event.

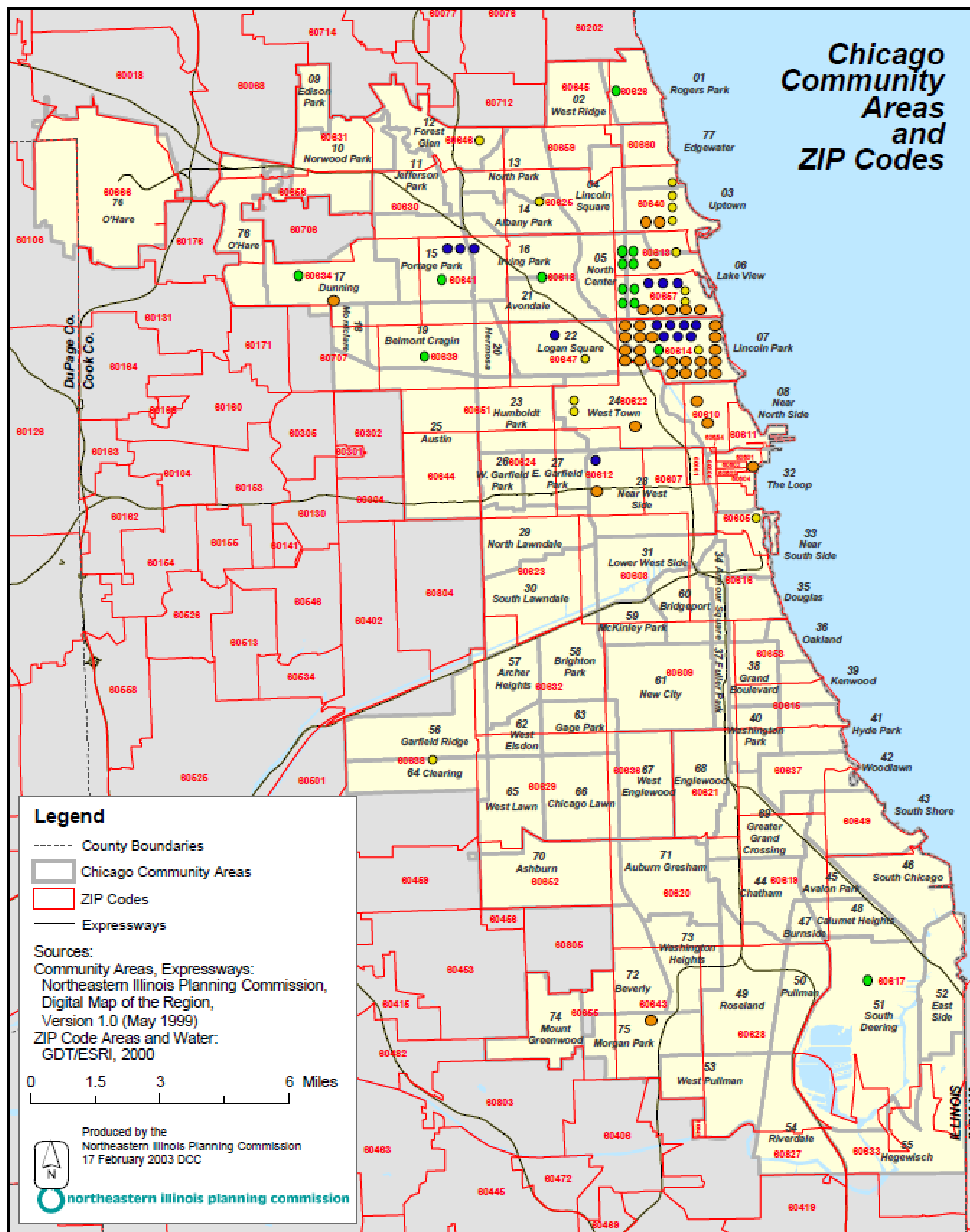

Figure 15: Distribution of User Residences by Zip Code. Yellow: Montrose Point; green: Bird Sanctuary; orange: North Pond; blue: Lily Pool.

Frequency and Reasons for Use

Interview respondents generally were frequent visitors to the Lincoln Park restoration areas. Nearly half (n=38; 49%) used one of the park areas 2–3 times per week or more (see Table 15). Nearly half (n=39; 48%) were also long-term users, having visited the park for 6–10 years or more (see Table 16).

Table 15: Frequency of Use across Park Areas

Frequency of Use Across Park Areas		Total	%
	Every Day	14	18%
	4-5 x week	6	8%
	2-3 x week	18	23%
	1 x week	12	15%
	2-3 x month	10	13%
	1 x month	5	6%
	< 1 x month	8	10%
	Other (Specify)	7	9%
Total		80	100%

Table 16: Longevity of Use across Park Areas

Length of Use Across Park Areas		Total	%
	< 1 Year	10	13%
	1-2 Years	6	8%
	3-5 Years	25	31%
	6-10 Years	15	19%
	11-20 Years	12	15%
	21-30 Years	6	8%
	> 31 Years	6	8%
	Other	0	0%
Total		80	100%

To test for significant differences in the frequency and longevity of use between the four park areas, the data were grouped into two categories using the median as the criterion for the division: use of the park 2–3 times per week or more, and use of the park 1 time per week or less;

and using the park for 5 years or less, and using the park for 6 years or more.[3] The differences for frequency of use were not significant (χ^2=5.08; p<.166). There were, however, significant differences in longevity of use (χ^2=7.65; p=0.05). Lily Pool respondents were significantly more likely to be recent users (p<.05).

The content analysis of the reasons respondents gave for visiting each of the park areas on the day of the interview revealed varied responses (see Table 17). Overall, walking (n=25; 26%) and bird/animal-watching (n=16; 17%) were the most frequently mentioned. To allow for statistical analyses of the differences in the reasons for use among visitors to the four park areas, the data were divided into four overarching categories: engagement with the natural surroundings (bird/animal-watching, fishing, enjoying the weather or outdoors, and feeding the animals); active uses (walking, jogging, roller skating, dog activity); passive uses (relaxing, writing, studying, photo taking; reading, working–paperwork); and social/family uses (child recreational activity; meeting friends).[4] Walking was included in the active group because it involved, as did the other uses in this category, movement between locations. Across all restoration areas, active uses (n=36; 39%) were the most frequent, largely accounted for by walking, with engagement with the natural surroundings (n=29; 32%) the second most frequent reasons given for use of the area.

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[3] We found it necessary to group frequency-of-use data into categories because the cell sizes were too small to conduct tests for significance.
[4] We found it necessary to group reasons-for-use data into categories because the cell sizes were too small to conduct tests for significance.

Table 17: Reasons for Use across Park Areas

Reason for Use on Day of Interview Across Park Areas		Total	%
	Relaxing	4	4%
	Walking	25	27%
	Jogging	5	5%
	Rollerskating	2	2%
	Bird/Animal Watching	16	17%
	Writing	1	1%
	Studying	2	2%
	Photo-Taking	2	2%
	Reading	4	4%
	Fishing	3	3%
	Dog Activity	4	4%
	Enjoy Weather/Outdoors	6	7%
	Child Recreation Activity	4	4%
	Meet Friends	2	2%
	Working	8	9%
	Feed Animals	4	4%
Total		92	100%

While it had been anticipated that bird watching would have been a more frequent reason given for use at both Montrose Point and the Bird Sanctuary, it appears that bird/animal-watching is a frequently given reason for all four of the study sites. Fishing was mentioned by only a small number of respondents at both Montrose Point and North Pond (where it is illegal in the pond itself), but surprisingly also at the Bird Sanctuary. Presumably such individuals were passing through the Sanctuary to fish elsewhere.

Like Most/Like Least

Interview respondents at each of the four restoration sites were asked what they liked most and least about these park areas. Again, although this question was designed primarily to support the Forest Service–City Design Center POE, it seems reasonable that an individual's responses to this question represent the values that he or she associates with the area, so I include

these data here.

Montrose Point. At Montrose Point, the Magic Hedge (n=15, 40%) was mentioned the most frequently, especially its importance as a bird habitat, as one visitor noted:

"It's very nice, you know, the way it brings in the birds during migration."

The natural landscape and wildlife (n=4; 27%) and the area's seclusion and peacefulness (n=4; 27%) also were mentioned. A Montrose Point respondent explained:

"I like the ruggedness of nature, and the wildlife and birds you see."

Another individual noted that Montrose Point is "a great spot for bird-watching."

The disruptions to the natural habitat were the least liked attributes noted by users of Montrose Point. One respondent complained about the nearby construction (n=4; 22%):

"It's [the construction] disturbing to the nature. It's not aesthetically pleasing, and it's noisy."

Another complained about sexual activities (n=4; 22%):

"You don't want to see sex solicitation going on and sex acts in the bushes. They're actually ruining the habitat."

The lack of effective dog and bicycle restrictions or the presence of people who were ignoring the posted regulations were also included among the least liked aspects of Montrose Point (n=3; 17%).

Bird Sanctuary. Respondents at the Bird Sanctuary did not focus on any one best liked natural feature, as did the Montrose Point visitors; rather, trees and wildlife (n=8; 42%) were the most frequently mentioned; for example:

"Like you're in the woods or near the birds and just quiet."

One respondent noted that the landscape appeared to be restored to a state that existed before the landscape design interventions:

"It kind of reminds me of what this whole area probably looked like before Europeans started settling here."

Two design interventions, the walking paths (n=3; 16%) and the viewing platform (n=2; 11%), were the next most frequently mentioned. Respondents explained that both of these features allow for bird-watching and engagement with other aspects of the natural landscape and wildlife. The tranquility of the Bird Sanctuary—"It's calm and peaceful"—also was noted by two respondents (11%).

When ask what they liked least at the Bird Sanctuary, people volunteered that the area was too small (n=4; 33%)—"It's not big enough." Poor visibility of birds and animals (n=2; 15%) and visitors who did not clean up after their dogs (n=2; 15%) were also mentioned, as one visitor commented:

"There are too many dogs off the leash and they don't clean up after them."

North Pond. As at Montrose Point and the Bird Sanctuary, the most frequently mentioned North Pond features that respondents liked were the natural habitat and the "naturalness" of the landscape (n=32, 53%). One visitor particularly appreciated the Park District's efforts:

"They [Park District] improved the wild . . . I would say the landscaping. And they improved the possibility of fish and birds coming by, like the herons that stay here."

When particular wildlife was mentioned, ducks were the most frequently appreciated.

The peacefulness and tranquility of the area (n=7; 22%), and the scenery and views (n=5; 16%) were also noted.

The most frequently mentioned least liked features of North Pond were disruptions to the most liked features, such as people not cleaning up their litter (n=7; 33%):

"There's garbage laying around. Visitors don't clean up after themselves."

Equally disliked was the large population of Canada geese (n=7; 33%), especially their refuse:

"The bird poop."

Traffic noise (n=3; 14%) was also mentioned as a least liked feature:

"The noise from the highway."

Lily Pool. Unlike at the other three park areas, when respondents were asked what they liked best at the Lily Pool, the most frequent responses mentioned the peace, tranquility, and seclusion of the area (n=9; 45%). Comments included:

"For me, I can think better when it's quiet; have time, you know, to myself, and away from everyday noise. . . . This place is kind of calm."

"It's very secluded. It's quiet out here. This is kind of a nice peaceful spot."

The design of the buildings and structures (n=4; 20%) and the natural landscape (n=4; 20%) received mention as well; for instance:

"And it's just kind of nice to be able to, you know, not go very far and kind of enter an area that just kind of seems more natural."

Lily Pool respondents, like those at North Pond, also disliked the traffic noise (n=3; 20%), a clear disruption of what they liked most. In addition, they noted the “garbage” and poor maintenance (n= 3; 20%) as well as poor water quality (n= 3; 20%).

Values Associated with Urban Parks

Although the question asking respondents to identify the most important values they associated with urban parks by using the restored areas had not been asked yet, these factors were threaded through half of respondents’ (n=40; 50%) answers when asked to give their reasons for using the park areas and to identify the features they liked most and least. Many of these values were included on the list I developed for the interview instrument, or were very similar to values on the list. At each of the park restoration areas, for example, at least one individual (n=5; 8%) referred explicitly to contact with nature, whether in reference to the natural landscape or wildlife, when explaining the reason for using that area; for instance, in the words of a Bird Sanctuary visitor:

“I’ll read a paragraph and then I’ll fill my soul with all the flowers, the birds—it’s a unique way to study.”

The presence of birds was of particular importance in all of these comments, such as:

“What we have here is pretty unique for the lakefront and it attracts a lot of birds. You know, there are a few spots along the lake that attract birds and this is a very good one.” (Montrose Point)

“It’s so green. I love the crane and the heron; the little heron that lives here. I like to come and visit him regularly.” (North Pond)

Many respondents (n= 16; 20%) remarked that the natural surroundings of the park areas

were valued especially in contrast to the cityscape; for instance:

"I like the nature because we're in an urban area. You know, it gets exhausting to look at cement all day." (North Pond)

"Just the fact that you can come out here and, like, not see any of the city. When you're in the middle of the meadow it feels like you're out in the middle of nowhere." (Montrose Point)

Of these respondents, six visitors (9%) noted the value of this urban park as a refuge from the city:

"It's actually kind of a refuge. . . . Well, I mean we're in a big city. It's like we need refuges around just to escape." (Lily Pool)

At least one individual from each of the park areas (n=6; 9%) spoke of the tranquility of the restored areas, often in contrast with its scarcity in the city, as described by this Lily Pool and North Pond user:

"It's cut off from all the activity in the city. It's very secluded. It's quiet out here. This is kind of a nice peaceful spot." (Lily Pool)

"It is very close to the lake but you don't really notice . . . [Lake Shore] Drive unless you are right there. There is a kind of serenity in the area." (North Pond)

The opportunity for solitude (n=4; 6%), again often in contrast to the city, was noted as well:

"It's the one place I can be alone." (Montrose Point)

Among the other values or benefits (n=26; 40%) that were included in the reasons given for using these park areas were to be outdoors, to engage in recreation, to be around other people, to have a place to call one's own, and to have a place to explore.

To systematically ascertain the values users associated with the restored areas,

respondents were asked to select from the abovementioned list of “benefits and values of urban parks”—the questions to which I have referred as forced-choice but which were also involved in open-ended responses because all respondents were invited to explain their choices. I have indicated how I developed this list in Chapter 3. The list included beauty, solitude, tranquility, recreation, health, contact with nature, native habitat preservation/restoration, community and/or city identity, public life, tourism, and other (please describe). Respondents were asked first to choose as many items as appropriate to represent the values on the list that were “the most important” to them and to explain why they were the most important. Then they were asked to choose the “most important one” among the values they listed as most important and, again, explain why it was most important.

I found that the values respondents identified as constituting the most important to them (which varied in number) were similar to those they volunteered in response to questions they had been asked about why they used the restored areas and what they liked most and least about them: contact with nature (n=64; 18%), tranquility (n=56; 16%), beauty (n=50; 14%), habitat restoration (n=43; 13%), and solitude (n=42; 12%) were the most frequently chosen benefits and values (see Table 18). No one added any other values or benefits to the list. The data for the single most important value revealed similar findings but a different ranking: contact with nature (n=19; 24%) remained the most frequently mentioned value or benefit, while habitat restoration (n=17; 23%) rose to the second most frequently mentioned. Solitude (n=4; 5%) no longer ranked in the top five; recreation (n=9; 11%) became the fifth ranking value (see Table 19).

Table 18: Values Selected as Important across Restored Areas

Selected Values Selected from List Across Park Areas		Total	%
	Beauty	50	14%
	Solitude	42	12%
	Tranquility	56	16%
	Recreation	29	8%
	Health	24	7%
	Contact with Nature	64	18%
	Habitat Restoration	43	12%
	Community Identity	20	6%
	Public Life	11	3%
	Tourism	12	3%
	Other	0	0%
Total		351	100%

Table 19: Values Selected as the Single Most Important across Restored Areas

Most Important Values Selected from List Across Park Areas		Total	%
	Beauty	9	11%
	Solitude	4	5%
	Tranquility	15	19%
	Recreation	9	11%
	Health	3	3%
	Contact with Nature	19	24%
	Habitat Restoration	17	23%
	Community Identity	2	3%
	Public Life	1	1%
	Tourism	0	0%
	Other	0	0%
Total		80	100%

The forced-choice questions became open-ended questions when respondents were asked why they chose particular values and benefits of urban parks or the restored areas, and in most

cases these responses were straightforward elaborations. For instance, when a Montrose Point visitor described why he chose "contact with nature," he referred to the landscape and wildlife:

"And a lot of that starts with the animals, the birds, the raccoons, the muskrats and everything else that are out here."

A Birds Sanctuary user's explanation was similar:

"I've seen more birds and more wildlife diversity here in this little tiny—what, less than an acre—than nearly anywhere I've been inside of a city park."

As in prior responses, park visitors also drew sharp contrasts between particular values and benefits of the restorations in comparison with life in the city environment. For instance, when explaining why contact with nature was important, users said:

"Living in the city there's not very many places where you see trees and grass that are natural. You know, it's all these landscaped things. . . . This is the most natural area around here. (Lily Pool)

"Well, I mean every day, Monday through Friday, everything is concrete and asphalt. It's nice to see some grass." (North Pond)

"It just gives you a sense of, like, you're in two different worlds, where you can relax. Like you're in the woods or near the birds and, you know, just quiet, and then all of a sudden you turn around the corner and there you are in the city again." (Bird Sanctuary)

A similar pattern was found for other frequently mentioned values and benefits of urban parks. For instance, according to many respondents, "habitat restoration," preserving and restoring the natural environment, was an important goal associated with environmental sustainability:

"That [habitat restoration] seems to be the most important to the future, to keep it

healthy.” (North Pond)

“Why do I say that? Because we’re running out of places like that.” (Bird Sanctuary)

“Because we need places where birds can rest on their migration. If they don’t have an oasis, then they’re in big trouble.” (Montrose Point)

And many respondents who referred to habitat restoration efforts contrasted these with some aspect of the city environment:

“I think that’s important because of the fact that man has taken over so much. I mean, you look at these skyscrapers and everything, that’s beautiful to a point also; but we need something like this for the animals and for nature to have their own little space.” (North Pond)

Interestingly, some respondents mentioned that children’s experiences in the restored areas were vital to teaching them to value habitat preservation and restoration:

“They don’t teach enough about preserving our nature. And you know, I think it’s important the children can come out . . . to a place like this and say, ‘Wow! Look at this. This is beautiful and we need to keep it.’” (North Pond)

For respondents who selected “beauty,” the pattern was the same. Some individuals simply elaborated on the value:

“It makes me very happy to see the wonderful, beautiful [place]. It’s a form of art.” (North Pond)

Others contrasted the beauty they experienced in the areas with urban beauty—or the absence thereof—in the rest of the city:

“Well . . . I mean urban beauty is one thing, but it’s nice to have just more natural beauty.” (Lily Pool)

For tranquility, again, the same pattern obtained. One user explained:

“I had a rough life and I come down here and it’s tranquil here. I feel like, you know, nature and everything around, it makes me feel good.” (North Pond)

And then there were others who explained why they selected tranquility, describing the restored park areas as a “kind of escape” from the city:

“It’s peaceful. It’s a relief from the concrete and the cars.” (North Pond)

For “solitude,” being alone was valued in and of itself:

“You know, sometimes you just want to get away to [be by] yourself.” (North Pond)

This was contrasted with being with others in the city:

“Because when you live in the city, you just don’t get a lot of solitude. It’s very noisy and you don’t get the chance to be alone so much.” (Bird Sanctuary)

“Well I mean we’re in a big city—it’s like we need refuges around, refuges around here just to escape, be alone.” (North Pond)

Some respondents identified recreation as something they valued at the park areas, although in one case it had to do with the area’s proximity to nearby facilities:

“So you know, you can go over and play golf over here on Diversey or you can go visit the gardens and the zoo” (North Pond)

More generally, the opportunity to engage in physical activity was mentioned by several respondents:

“It’s just a nice place to exercise or walk. (Montrose Point)

“There’s just space for you to do things that you don’t have where I live. Even if you want to just throw a Frisbee or bring your dog and stuff.” (Montrose Point)

It was not possible to test for statistically significant differences between respondents’ selections of the most important values associated with the four park areas because the cell sizes

were too small. A χ^2 test of significance was performed on the six most frequent responses to the request for the most important values and the one most important value from the list of important values (beauty, solitude, tranquility, recreation, contact with nature, and habitat restoration). The χ^2 test for the most important values was not significant (χ^2=11.27, p<0.7330). The χ^2 test for the one most important value was significant (χ^2=0.0408; p<0.04). Contact with nature was selected most frequently at North Pond (p<.05), solitude at the Lily Pool (p<01), and recreation at the Bird Sanctuary (p<.05), when compared with responses given at the other restoration sites. The latter choice most likely involved walking or jogging around the perimeter of the fenced-in area because, as noted in Chapter 3, the Bird Sanctuary's main interior area is "for the birds."

Interview respondents were asked if they were involved in groups devoted to nature conservation or environmental sustainability. A very high number of people responded positively; that is, half (n=40, 50%) responded that they did, most frequently stating that they were involved in volunteer work (n=17; 21%). Because of the small cell sizes, however, I compared two groups to assess for statistically significant differences in such involvement by park areas: those that had no involvement were compared with those indicating that they had some form of involvement. A χ^2 analysis found no significant differences in involvement across the four park areas. Two χ^2 tests for relationships between participation in environmental activities and choice of habitat restoration as an important value or as the single most important value related to park use found no significant correlation, indicating that there is no reason to doubt that, at the time of the study, the habitat restoration areas appeal to a broader audience of park users than those who are already engaged in environmental issues.

Assessments of Renovations

An important component of the POE for the Forest Service–City Design Center was asking respondents whether or not they perceived recent changes in the park areas they were visiting and, if they answered in the affirmative, what these were. Respondents were then given a list of renovations that had been made to the respective landscapes and features and asked which were the most and which were least important and why. Lastly, respondents were given the option to suggest additional changes they would like to see made. Here again, although this portion of the survey was designed almost entirely to support the POE, which was undertaken in part to assess the cost–benefit calculation with respect to the restorations, I include data that were relevant to the dissertation.

Before reporting those results, however, I review the most general results of this portion of the survey. Surprisingly, when asked if they noticed recent changes to the areas they were visiting, not all respondents agreed that changes had been made. In each park area some visitors said “None” while others noted one or more changes. Two North Pond respondents’ comments illustrate this difference:

“You know this park has never changed.”

“They regenerated the whole area and definitely protected the pond. The general appearance increased and I think they did a great job in upgrading it.”

In spite of the number of changes that had been made (which are reviewed in Chapter 3), a slightly larger number of respondents (n=42; 53%) volunteered that no changes had been made, compared with those who offered one or more changes (n=38; 47%). A χ^2 test of statistical differences in the frequency with which people stated, respectively, that no changes had been made and that changes had been made was statistically significant (χ^2=8.81, p<.03). This

difference was most pronounced in comparing responses pertaining to the Lily Pool, where significantly more changes were noticed (n=11; 73%; $p<0.05$), with those pertaining to Montrose Point (n=12; 80%; $p<0.05$), where significantly fewer respondents noticed that changes had been made.

Since changes made during the restorations varied across the areas under study, I report data pertaining to each area that were relevant to the dissertation's research questions separately below.

Montrose Point. The most frequently mentioned changes noticed by respondents at Montrose Point were the newly planted prairie grass (n=6; 40%) and the removal of trees and vegetation (n=3; 20%). As one visitor noted:

"The prairie vegetation, planted in the meadow—it gives people an opportunity to understand the prairie. . . . I think introducing any native plants into this area, you know, is just good. It just helps enhance the quality for the birds that are migrating through."

Following the open-ended question about changes to the area in which they were being interviewed, respondents were given the list of renovations to that area and asked to consider which changes were important. A strong majority of people interviewed at Montrose Point (n=13; 87%) chose one or more habitat restoration changes as important. All four such changes were selected by one or more respondents: native vegetation planted (n=10; 30%), vegetation planted at the Magic Hedge (n=9; 27%), vegetation planted along the dunes (n=8; 24%), and additional trees planted (n=6; 18%). When explaining why they chose particular changes, most elaborated on the value of these habitat restorations to wildlife, especially birds:

“I’m glad that the city is spending some money on wetlands and preserving areas like this . . . [the] black crown night heron has been gone from this area for about 30 years; [it] just started coming back last year. That’s incredible.”

“The multi-level vegetation. . . . That’s going to protect the hedge. . . . You’ve got multiple species . . . for attracting birds.”

When given the opportunity to select the least important renovations, not surprisingly, fourteen of the respondents (93%) indicated that there were no least important habitat restoration features.

Bird Sanctuary. The majority of respondents at the Bird Sanctuary (n=12; 80%) noticed changes that included such improved park features as the fencing, the benches and the viewing platform (n=23, 26%), better maintenance of the area (n=5; 22%), a positive increase in the “natural state” of the area (n=4; 20%), and the paths (n=3; 15%). These changes were most often valued because of the improvement to the bird habitat and enhanced viewing access. One visitor commented:

“They’ve drawn a lot more interesting wildlife here. You now see blue [herons], green [herons], black [herons], night [herons], and a lot of exotic waterfowl come through.”

When given the list of changes, a majority of Bird Sanctuary visitors (n=11; 73%) selected one or more habitat restoration changes. All such changes were selected as important, with the increased size of the area (n=5; 14%), removal of non-native plants (n=5; 14%), and the planting of woodland vegetation (n=5; 14%) the most frequently noted. One respondent explained:

“Well, it’s all of the replanting . . . and the wetland area—that was an important step for them to do. The new fence is really a key element of that. There were a lot of breaks in the old

fence and people would, like, sneak in and drink a couple of twelve packs up in the woods and leave bottles around."

No habitat restoration changes were selected as unimportant.

Five (33%) respondents selected new features from the list, the most frequent of which was the viewing platform (n=4; 44%) because, as explained by a user:

"It's a good spot for looking in."

On the other hand, two respondents (13%) chose the viewing platform as the least important new feature. As one said (consistent with our observations):

"No one uses it."

The vast majority of Bird Sanctuary respondents (n=13, 87%) had suggestions for other changes. Additional plantings (n=3; 21%) and a further increase in the size of the area (n=3; 21%) were the most frequently mentioned. One woman's comments illustrate a preference for limiting anything that is destructive of the natural habitat:

"I would put up better signs for keeping dogs out . . . and no bike riding because when people come in and do those types of things here, they ruin the nesting habitat."

North Pond. Sixty-nine percent of North Pond respondents (n=24) noticed changes made to the area. Of the changes mentioned, the most frequently volunteered was related to habitat restoration; that is, a positive increase in the "natural state" (n=13; 37%), as is evident in two comments:

"It seems like it's so much more nature—well, like the native prairie vegetation planting because of the animals. In order to keep the animals around you've got to have some vegetation. The improved water quality for the birds—the same reason you have to have it for the animals. It keeps them around."

"There are new plantings, new care for the trees in the area, and for all the plants and so forth. None of this was here before. None of the natural landscape was here before, so there are huge changes that have taken place on that score."

Improved maintenance (n=8; 17%) and the addition of paths near the pond were also mentioned.

The majority of respondents (n=30; 79%) selected one or more habitat restoration changes from the list, with all four changes mentioned by at least one. Improved water quality (n=25; 31%) received the largest number of mentions, followed by the planting of native prairie vegetation (n=18; 24%), shoreline restoration (n=17; 22%), and selective tree removal (n=16; 21%) as the most important changes. One visitor spoke generally about the "degraded" conditions of the park area in the past:

"Because ten years ago, the pond was degraded. It was littered. It was eroding. It was a very 'potential' place . . . potential beauty, but it was very degraded. It was just very sad to walk around and see how bad it was. And to have that restored is just a wonderful sense of accomplishment."

Another spoke about the importance of shoreline restoration:

"If you have shoreline restoration, you're going to have nesting habitat; you're going to have places for fish to breed."

As expected, thirty respondents (79%) stated that none of the habitat restoration changes were unimportant. For those who did select an unimportant change, the native prairie grass (n=3; 38%) was the most frequently mentioned.

Nineteen respondents (54%) chose one or more of the new features as important. Among these features the following received the largest number of mentions, for their value as vantages

from which to observe the landscape and wildlife, namely the gravel and wood paths (n=14; 47%), and the stone overlooks (n=5; 17%):

"The paths let you get nearer to the grasses, to see [the birds] better."

"For me, it's [one of the overlooks] a good place to take pictures of herons at a certain time of year."

A large majority of North Pond respondents (n=25; 71%) also noted that none of the new park features were unimportant.

The majority of North Pond visitors (n=24; 69%) suggested additional changes that they would like to see. The most frequently mentioned were better maintenance (n=4; 15%) and shoreline protection (n=4; 11%):

"Maybe the city maybe has, like, clean-up . . . people . . . . It's just, like, right here there's some trash."

"I think there is a lot of erosion. . . . There's got to be a better way to do the shoreline protection."

Lily Pool. A minority of Lily Pool respondents (n=6; 40%) volunteered that they perceived changes to the area, although as shown in Chapter 3 there was a concerted effort to make changes that would restore or finally implement Caldwell's original design. Improved maintenance (n=3; 38%) was mentioned most frequently:

"They cleaned it up."

"I like the pavilions. They cleaned them up."

When presented with a list of habitat restorations, however, the majority of respondents (n=10; 67%) selected at least one. The most important were selective tree removal (n=6; 40%) and the restocking of fish (n=5; 33%):

“They cut down some of the trees . . . . They used to overhang into the pond.”

“I would say the fish for the birds. The fish allows, obviously, for more birds to come in and eat here, which brings more animals in.”

All three historic restoration changes were mentioned by two or more individuals: the replanted vegetation based on Caldwell’s design (n=3, 38%), the rebuilt pavilions (n=3, 38%), and the Fullerton Gate (n=2, 25%). The beauty of the latter two features was the reason given for selecting them:

“The Fullerton gate. It’s really beautiful. I think it’s a wonderful design.”

The removal of the incompatible stone (n=6, 60%) was the most frequently cited unimportant historic restoration change.

Considerably fewer Lily Pool visitors (n=2; 13%) selected the only new feature—wheelchair-accessible paths, as important:

“’Cause you don’t have those [accessible paths] out in the woods.” Interestingly, two visitors (13%) selected these paths as unimportant.

Suggestions for additional changes were volunteered by two respondents (15% each), additional plantings and some form of soundproofing:

“I’d be interested in seeing more wild flowers.”

“I would try to build a sound barrier fence.”

Other suggestions for additional changes included increasing the area’s size and maintaining it better:

“Make it bigger. Expand it—great! Because I feel like it’s beautiful and it’s peaceful; but it’s only one small circle so I always have people staring at me from another angle. And I like to be able to feel like I’m alone.”

Discussion of Results

This study generated two sets of overlapping data, one set to provide data for the POE conducted under the auspices of the Forest Service and the City Design Center, the other to provide data pertaining to the research questions that motivated this dissertation. I shared with the Forest Service–City Design Center the data I collected in response to forced-choice and open-ended questions about the values that users of the restored areas in Lincoln Park associated with urban parks through their experiences in these areas, but I also found a considerable portion of the data collected to assess the effectiveness of the restorations for the POE to be relevant to the dissertation. Following a brief general discussion of the results of the study, I consider the implications of the values that respondents selected in greater numbers as important values or as the single most important value—contact with nature, habitat preservation/restoration, tranquility, solitude, and beauty. In the course of my analysis of the data an interesting theme emerged, one that suggests that urban parks can inform what I call a person's *nature-identity*. I found evidence of two variants of nature-identity among the respondents and, although the framework within which the study was conducted did not allow me to explore this theme further, I discuss these variants in this chapter. I close the chapter with a brief consideration of the challenge that ecological restoration poses to the idea that there is an irresolvable dichotomy between what is natural and what is built by human agency.

There is strong support in the POE findings that the restoration projects at Montrose Point, the Bird Sanctuary, North Pond and the Lily Pool were noticed, appreciated, and that the park areas were used, by and large, as intended. The benefits of habitat restoration were recognized and deemed important by the majority of interviewed park area users. Almost all the

respondents in the restoration areas agreed that what they appreciated most were natural features of the landscapes and wildlife as well as the tranquility and seclusion of the areas they were visiting—especially in contrast to the surrounding cityscape. Apparent in the responses to questions about reasons for use and what respondents liked most were explicit statements about the value of nature for nature's sake but, more frequently, the value of contact with nature *in the city*; the urban park as refuge *from* the city; and the value of beauty, tranquility, and solitude. Many respondents spoke of the contrast between their experience of nature in urban parks and their experience elsewhere in the city where what they consider to be nature is largely absent.

Similar responses were volunteered when respondents were asked explicitly to describe the values and benefits of urban parks (based on their experiences in the restored areas). Those most frequently mentioned were experiencing nature in the city, finding a refuge from city life, and experiencing solitude and tranquility—again, often couched in language that expressed an acute awareness of the contrast between being in the restored areas and experiencing everyday city life. When given a list of values and benefits of urban parks—which did not mention this contrast with the surrounding urban environment—respondents, not surprisingly, chose values similar to those they had volunteered in response to questions about their reasons for using the park areas and what they liked most/least about them, including contact with nature, tranquility, and solitude. They gave similar explanations for these choices, often contrasting these values of urban parks with the absence of these values outside the park areas. Three values that were not volunteered previously were selected frequently from the list—habitat preservation/restoration, beauty, and recreation, the choice of all three also often explained by contrast to life outside the park in the city.

Habitat restoration was considered an important addition to the city's fabric, in particular

because of the absence of such habitats elsewhere in the urban area. The beauty of the natural landscape was valued not only for its own sake, but also in contrast to the "different type of beauty" offered by the human-built urban environment. It is noteworthy that few respondents said anything that would indicate that they considered Lincoln Park or the restored areas they were visiting to be aesthetic objects, a perspective that has guided some nineteenth- and twentieth-century landscape design theories; rather, they valued the experience of the beauty of the natural landscape in contrast to the manicured appearance of formal gardens. The value of recreational opportunities offered in urban parks also was explained in contrast to their absence in most areas of the city.

Comparing Results across Park Areas

While the findings overall were quite similar for each of the four park restoration sites, there were some differences that warrant attention. Here I refer again to Gobster (2002b), which along with Gobster (2001) informed the early development of the list of values that were included in the interview instrument, because the results of the study often resonated with Gobster's account of the people–nature interactions he observed in his thinking about the project of restoring the four areas of Lincoln Park.

Gobster characterized stakeholders' contested perspectives on the renovation of Montrose Point as "*nature as a tournament of values*." This tournament was not as apparent in responses to the survey instrument. The Magic Hedge, a knotty point of contention in the planning process, was mentioned by many of the Montrose Point interviewees as its most liked feature, with no one suggesting that this design feature be removed to return to Caldwell's design strategy favoring a long view. To be sure, at least one respondent expressed indifference to the Magic

Hedge and at least one expressed appreciation of the long view, but there was little evidence of further conflict.

At the Bird Sanctuary, the stakeholders' intent was to keep the area closed to the public—for birds only—leading Gobster to describe its value as "*nature as refuge*." And indeed, the fence had kept people out of the Bird Sanctuary at the time of the study. Visitors appreciated the improved habitat for birds, and more generally the trees and wildlife. The value of the habitat restoration is evident in the frequency with which respondents selected that as a change they viewed as important, and no one said it was unimportant. Several respondents advocated further expansion of the Bird Sanctuary, arguing for more space dedicated as a bird refuge and additional vegetation. Yet of all the restoration areas, the Bird Sanctuary had the greatest percentage of active users, and the value of recreational opportunities in urban parks was chosen more frequently at this site as compared with the others. This difference may also explain why some respondents selected the viewing platform as an important new feature, while others selected it as unimportant. These findings suggest that there are two types of visitors to the Bird Sanctuary: those who visit it to engage with wildlife and nature, and those who are passing through to use the surrounding areas for active recreation or walking the perimeter for exercise, with the former possibly resenting the latter as suggested by complaints about noise.

Gobster expected that North Pond's people–place interactions would be best expressed as "*nature as foreground—nature as background*." Because the data collection was confined to the restored areas immediately surrounding the pond, this distinction was not evident; rather nature as foreground is predominant, at least in the interview findings. The natural landscape and wildlife were North Pond's most liked features. Contact with nature was the most important value that was selected, which was selected more frequently at North Pond than at the other

restoration sites. The vast majority of respondents volunteered that the enhancement of the "natural state" was the most noticeable and valued change. One or more habitat restoration strategies were deemed important by a vast majority of respondents, and new park features that allowed for greater access to the pond's edge and plantings were selected by a majority as well. The observation data, however, suggest subtle differences in the use of this park area. Observed users were less likely to be interacting with nature and more likely to be engaged in passive activities. For these North Pond users, nature may serve as a backdrop, albeit a satisfying one, for activities such as relaxing, reading, writing, and studying.

Findings for the Lily Pool differ from those for the other restoration sites—perhaps a reflection of its distinctive design. Gobster's characterization of this park area as "*nature as a sacred garden*" is apt. Lily Pool visitors volunteered that what they liked most about the site was its peacefulness, tranquility and seclusion, and also the design of the buildings and structures. Solitude was selected more than any other by respondents at the Lily Pool as the single most important value of urban parks. Like visitors to the other restoration sites, the majority of respondents at the Lily Pool also selected one or more habitat restoration changes as important. Contact with nature was noted as an important value, especially for bird- or animal-watching. A few respondents also noted the importance of the historic renovation of the building and structures. The Lily Pool was the one area most likely to be appreciated for its distinctive design features and some respondents were aware of Caldwell's legacy as a landscape architect. When asked to suggest changes, improvements in features that intruded on the valued aspects of the site were mentioned: better maintenance, additional plantings, and even soundproofing in the form of a wall along the perimeter.

Values Associated with Ecological Restorations in Lincoln Park

I turn now to interpreting the results of the study that pertain most directly to the research questions. As I have explained, the values I discuss here did not emerge through coding during data analysis; they were developed prior to administering the interview instrument. Respondents were given the option of adding their own values to the list they were shown, but no such values were volunteered. Still, the results suggest that users of urban parks such as the four ecologically restored areas in Lincoln Park value aspects or features of the areas that are consistent with the objectives of ecological restoration that include ecological integrity and historical fidelity. As noted above, respondents did not express as much appreciation of historical fidelity as of ecological integrity, but I suspect that further analysis would reveal that, while historical fidelity to a design aesthetic was not appreciated by many users of the restored areas, historical fidelity to park features that had attracted visitors in the past was. For example, while a few respondents appreciated the prairie-style designs of Caldwell at the Lily Pool and Montrose Point or Jensen at North Pond, many appreciated the historical significance of the Magic Hedge—an accidental benefit that was not included in the original design—as an attractor of birds at Montrose Point and wanted it to remain.

The top six values selected as important by respondents at the restored areas were, in order of frequency, contact with nature, tranquility, beauty, natural habitat preservation/restoration, solitude, and recreation (see Table 18 above). The order of frequency was slightly different for the single most important value: contact with nature, habitat restoration, tranquility, beauty and recreation (tied), and solitude (see Table 19 above). These selection distributions offer some interesting implications for ecological restoration in urban parks. In my review of the literature I discussed the debate over the very possibility of ecological restoration, a

controversy informed by a dichotomy that is perhaps unique to such ecological restorations.

In my study, for example, many respondents contrasted human-made or built environments with natural environments, but ecological restorations, while they are indeed natural environments, are to a greater or lesser extent also built environments. I address that theme more explicitly later in this chapter, after I discuss another theme, one that emerged during analysis of the interview data, the abovementioned nature-identity. I found that the single most appreciated value of the ecological restorations was contact with nature, and its relationship to other often-selected values suggests that ecological restorations in urban parks can contribute to either of two types of nature-identity, which I define below. Again, I was unable to explore this theme further because it fell outside the framework of the POE in which my dissertation research was included. Before I discuss nature-identity, however, I take up the individual values included in the survey instrument in the reverse order of frequency of selection, discussing the less frequently selected first.

Community and/or city identity, public life, and tourism. These three values were identified less often than any others by respondents across the restored areas of Lincoln Park. Community identity was mentioned by more respondents than either of the other two, but even so it is likely that ecological restorations in urban parks offer these benefits to a lesser extent than other features, such as playgrounds for children (a play area at North Pond was mentioned by more than one respondent there) or other amusement facilities such as zoos, beaches, and athletic fields. One respondent advocated for the use of urban parks to host public festivals, for example, but it would be difficult to stage a festival of any kind in an ecologically restored park area without compromising its ecological integrity. Areas designed to provide users with tranquil natural settings are ill-suited to public events.

To be sure, it should be possible to promote an ecologically pristine area of an urban park as a symbol of civic pride that would contribute to forming or enhancing a city's identity and in that way perhaps even promote tourism and boost the local economy, but the values that most respondents in this study associated with urban parks and their use of the restored areas were consistent with what I found in my literature research. Natural park areas appeal to users who seek natural beauty, tranquility, and solitude, and support environmentally sound park management and ecologically healthy landscapes that attract wildlife and feature abundant plant life. Given the scale of Lincoln Park and the city of Chicago, the ecological restorations that were implemented within the larger project of rejuvenating the park that was incorporated into the Lincoln Park Framework Plan surely enhanced that broader effort, but their contribution to the city's identity as the home of a lakefront playground open to all is but a small piece of a very large puzzle that includes recreational activities such as boating, fishing, and athletics and attractions such as zoos and beaches.

Health and recreation. My literature research revealed an unsurprising link between urban parks and health, especially through recreation. There is no longer any doubt that regular vigorous exercise promotes health, and urban parks provide many opportunities for users to reap the benefits of exercise. Lincoln Park is rightly noted for its extensive offerings of athletic fields, jogging and bicycle paths, and other opportunities to engage in exercise. To most park users it is likely that the ecologically restored areas on which this dissertation focuses are lovely diversions but do not figure into their regular use of the park.

As we have seen, though, recreation and health were selected with far greater frequency than community/city identity, public life, or tourism as values associated with urban parks by the respondents in this study. Recreation ranked fourth among the ten values on the survey list as the

single most important value associated with the use of the restored areas. Yet this ranking was perhaps skewed by the higher frequency of selection at the Bird Sanctuary, a somewhat anomalous finding given that most of that area is closed to public access to create a true sanctuary that is almost entirely free of human presence. Respondents at the Bird Sanctuary who selected recreation were very likely attracted to its relatively unimpeded perimeter paths or were in transit to other areas of the park to pursue their recreational activities.

Respondents who mentioned health as a value or benefit of their use of the restored areas often included that sentiment in a broader conception of natural areas as healthy environments that are relatively less polluted or dirty than the typical urban landscape and are conducive to walking. Others connected health—mental as well as physical—with the benefits of tranquility or solitude, values that in their own right figured much more prominently in respondents' selections than health. It seems likely then that the health or recreational benefits of ecologically restored urban parks are perceived as secondary to others that are the primary mechanisms through which these benefits may be enjoyed.

Tranquility, beauty, and solitude. These values are easy to associate with being in the natural environment. People have sought retreat from urban life throughout history in natural or wilderness settings, seeking an environment free from mechanical noises, artificial lighting, and vehicular traffic. In my study tranquility was the second most often cited value when respondents could select as many values from the list as they deemed "important." It was the third most often cited as the single most important value. Beauty followed next in both rankings, with solitude close behind among important values and only a bit further behind as the single most important value.

I discuss these values together in part because so many respondents who selected one of

them also selected either or both of the others. Moreover, to a greater extent than the other values I have discussed here so far, these three are associated with the contrast between experiencing the ecologically restored park areas and experiencing life outside of the park. Time and again respondents expressed appreciation for the natural settings in the four areas *in contrast to* the urban setting to which they would return and in which they spend most of their lives.

Although all the data I collected for the POE were separated by park area from the outset, I have focused most of my attention for the dissertation on aggregated data that runs across the four areas because I am interested in the larger implications of ecological restoration in urban parks for the quality of life in broader urban environments. Yet the differences across the restored areas, in terms of the aesthetics of design, the historical legacies of the areas, and the objectives of the restorations for the immediate ecology, reflect the range of settings in which park users find opportunities for tranquility and solitude and for enjoying the beauty of nature. We have seen that the Montrose Point and Lily Pool restorations in particular blended the elements of ecological integrity and historical fidelity to a considerable degree, as the design plans for restoring both areas sought to preserve a legacy in landscape architecture while also creating a natural environment in which wildlife would thrive. Still, their respective settings likely affected specific selections, as solitude was selected relatively less often by respondents at the more open Montrose Point area than at the relatively secluded Lily Pool as the single most important value. Lily Pool respondents were more likely to cite the area's seclusion as an opportunity to be alone with their thoughts or to read in peace, while Montrose Point respondents were more likely to be actively engaged with nature, likely moving about to spot interesting birds.

Similar comparisons that turn on specific features could be made with all four restored

areas, but the broader lesson from the study results is that ecological restorations in urban parks, when executed as the Lincoln Park cases were, indeed provides park users with opportunities to drink in natural beauty and experience tranquility and solitude. In my results these were highly valued benefits of the restored areas that enabled users to escape the noise and bustle of city life and enjoy quiet moments of rest and meditation.

Natural habitat preservation/restoration. I discuss the final two values—habitat restoration and contact with nature—separately, before tying them together when I discuss the nature-identity theme. Given the broader context within which ecological restoration is practiced, habitat restoration lies at the philosophical core of the movement. Yet ecological restoration in urban parks is by definition small-scale restoration and it may seem unlikely that, no matter how 'natural' a small area can become through a restoration project, more space is needed to accommodate the needs of animals and in many cases plants as well. Nevertheless, consider the range of wildlife mentioned in responses to the survey instrument: foxes, turtles, rabbits, coyotes, muskrats, fish, and others that, unlike squirrels, for example, are rarely encountered in urban environments. Consider the far greater number of bird species mentioned, including several heron species, egrets, owls, hawks, Canada geese, and a range of smaller birds. This suggests that habitat restoration in urban parks can be achieved with considerable success.

Habitat restoration was indeed selected as a particularly salient value of urban parks by respondents. It was ranked second as the most important value selected from the list on the survey instrument. Specific landscape and ecological restoration strategies were volunteered as important features of each of the park areas in responses to other questions as well. At each park area, one or more habitat restoration changes were selected by the majority of respondents as an important value associated with that area. All habitat restoration changes were selected, and

virtually all respondents indicated that none of the habitat restoration changes were unimportant. In their responses, respondents appear to conceive of habitat restoration as intrinsically important and also as necessary to enhance natural qualities and to maintain engagement with the landscape and wildlife. As noted above, in the reasons given for selecting habitat restoration as important, many respondents commented on the need for natural habitats because of their absence elsewhere in the city.

The restored areas of Lincoln Park benefit, of course, from their lakeside location, as many species of migrating birds follow the lakeshore on their journeys north and south and find wooded settings near the shoreline very attractive. It is no accident that the Montrose Point area is known officially as the Montrose Point Bird Sanctuary and no surprise that the relatively dense woods of the other areas under study provide convenient roosting spots for both migrating birds and local avian residents. These areas, especially Montrose Point and the Bird Sanctuary, have a history as magnets for dedicated bird-watchers; the Magic Hedge, which Gobster (2001, p. 43) has called an "icon" that birders hold "sacred," and the Bird Sanctuary, which is fenced off from human encroachment into the natural area at the request of birders themselves, are known far and wide among birders not only in the Chicago area but throughout the Midwest and elsewhere in the country. These factors perhaps attract many park users with an affinity for habitat preservation or restoration, but the important point is that these objectives were met in an urban park, not in a wilderness or even a sparsely settled rural area.

Several respondents who selected habitat preservation/restoration as an important value observed that it deserved a higher status than some of the other values on the list because without preserving or restoring natural habitats there would be no opportunities to enjoy natural beauty or find tranquility and solitude in a natural setting. To these respondents preserving or restoring

natural habitats would serve as the means to making other values and benefits on the list available. I found a similar sentiment expressed regarding contact with nature, to which I turn now.

Contact with nature. This value was the most frequently selected value among those counted as important and among those counted as the most important single value. Again, while this may seem unsurprising given the broad objectives of ecological restoration, it suggests that ecological restoration in urban parks can provide the same benefits to city dwellers as larger-scale projects provide to a wider public that includes dedicated outdoors enthusiasts, naturalists, and environmental advocates. Respondents who selected and discussed contact with nature often emphasized its heightened importance in an urban setting, not only to provide nearby residents with the benefits of a natural environment but also to teach children about natural history and environmental stewardship.

Among the most interesting findings with respect to contact with nature was that, as was the case with habitat preservation/restoration, many respondents regarded it as it were as a higher-level value, one that if achieved would provide other benefits on the list, such as tranquility, beauty, and solitude. That is, many respondents saw these other values as experiential qualities of contact with nature, inclining them to privilege it on the list of important values as the most important one. To be sure, neither contact with nature nor habitat restoration were selected by the majority of respondents as the single most important value (although together they were selected by nearly half of them), but no other values were accorded the higher-level status these were. Again, these results suggest that the ecological restorations in Lincoln Park achieved important objectives associated with such projects in other settings, demonstrating the viability of ecological restoration as a design strategy for urban parks.

Nature-Identity in Urban Parks

While the values I have discussed here were developed prior to administering the survey instrument, I nevertheless conducted initial coding to analyze the data I collected. During this process, as I compared statements across the 80 interviews I conducted, I thought about how people in urban environments conceive of themselves in relation to nature. I believe individuals have an innate propensity to seek out nature, at least occasionally, but also that their experiences with nature affect how they conceptualize it. Coding the responses to the questions that elicited from respondents the values they associated with the areas under study, I noticed two clusters of responses. On the one hand, many respondents seemed to develop through their use of the restored park areas what I thought of as a personal relationship with nature. On the other hand, many respondents extolled the virtues of habitat restoration and described their relationship with nature in terms of moving about in order to maximize their awareness of the environment around them, with a broader appreciation of the objective value of natural habitats.

Both of these approaches to nature begin, of course, with contact with nature, the single most often selected value among those included in the survey. Many respondents cited the opportunity to be in contact with nature as the chief benefit of the restored park areas, but some seemed to achieve that benefit through introspective or meditative experiences in which solitude, tranquility, and enjoyment of beauty engender deeply personal feelings for nature, while others seemed to achieve that benefit through interacting with the natural world, even if only to observe animal life unfolding, which seemed to provide them with a sense of satisfaction that natural habitats had been created or preserved. Respondents who said they had some involvement in environmental issues tended to fall into this camp, and I encountered several respondents who

were actually involved in some form of volunteer work to maintain the park areas in which they were interviewed.

These considerations reminded me of a concept I had encountered in the literature in environmental psychology. That concept was introduced by Roberta Feldman in an influential article (Feldman, 1990) in which she studied how people in America's increasingly mobile population remained comfortable, feeling "at home" as it were, in spite of moving from place to place more than once in their lives. Feldman postulated that many people in such circumstances had developed what she called a *settlement-identity*, a sense of connection or bonding not to a particular place they called home but to a particular *type* of home environment. She developed this concept while considering "one means by which people who move residence may maintain psychological bonds with home places . . . substituting residence in similar types of places for the constancy of residence in one . . . home place (Feldman, 1990, p. 186). In the study Feldman sought to "explain the ways in which people may establish psychological bonds with *types* of settlements; what will be called *settlement-identity*" (pp. 186–7; first emphasis mine, second in the original).

As I analyzed the data I had collected I began to understand that the urban dwellers who responded to the survey instrument might be bringing to the park areas, or developing within the park areas, their own *nature*-identities, psychological bonds with nature that could be differentiated by types of nature or differing ways of experiencing nature. That is, urban dwellers seem everywhere drawn to natural areas that are accessible to where they live, and this as I've noted seems almost instinctual. The question then is whether users of natural areas in urban parks such as the ecologically restored areas in Lincoln Park shape their nature-identities through their experiences of nature in those areas or experience nature in the areas based on existing nature-

identities. In either case, once an individual's nature-identity is established, that individual instinctively seeks natural areas that provide the values that constitute that nature-identity.

Perhaps, then, those respondents in the ecologically restored areas of Lincoln Park who selected values such as beauty, tranquility, and solitude as the most important to them are expressing a particular type of nature-identity, one in virtue of which contact with nature helps them to feel a kind of inner harmony or interiority. On the other hand, those who emphasized the value of habitat restoration, caring about the environment not only for themselves but for others as well, and supporting ecosystem management practices that sustain habitats for wildlife and native vegetation, may have been expressing another type of nature-identity, one in virtue of which contact with nature helps them to feel a sense of belonging to a larger reality, a feeling of harmony with the world around them or exteriority.

If individuals indeed form nature-identities in a process similar to that in which they form settlement-identities, the practice of ecological restoration in urban parks should be conducted much as the restorations of Lincoln Park were, with considerable public participation in the entire process, from planning and design to implementation and post-implementation evaluation. Landscape planning and design might in that case be seen less as a purely artistic endeavor with the objective of creating aesthetic objects to be appreciated as works of art and more as a means of engaging park users through their nature-identities, enriching their lives by creating places to which users develop deep psychological bonds with the natural environment even if that environment is circumscribed by the surrounding urban environment.

Ecological Restoration and the Dichotomy between the Natural and the Human-Built

I close this chapter with a very brief reflection on an interesting aspect of ecological

restoration that I considered in Chapter 2, namely whether an ecologically restored area should be considered 'natural' in light of its being the product of human intervention. As noted, the four restored areas in Lincoln Park sit on landscapes that did not exist to prior human settlement of the area, so there was no question of achieving historical fidelity by returning those specific areas of the earth's surface to a prior state that could be enjoyed by anyone but swimmers and divers. Yet I believe that my research has shown that ecological restoration can create spaces in which the ideals of historical fidelity and ecological integrity can both be realized, albeit with a twist. Aspects of several of the restored areas represent important elements of the native Midwestern landscape, with its typical composition of prairies and forests and streams.

Yet this restored environment, however 'natural' it feels, is decidedly human-built, and in that sense it represents a potentially problematic dichotomy. We have seen through this study that park users who selected values such as contact with nature, habitat restoration, tranquility, and solitude often contrasted the beauty and serenity of the natural areas with the harsh concrete-and-steel, hyperactive urban environment surrounding the areas. The strong agreement respondents expressed that attests to the success of the habitat restorations and, on the whole, the lack of conflict apparent in these assessments may also be understood in the ways in which the park users framed the meaning of nature in urban parks—that is, in terms of what was missing in the non-natural, human-built environment. This contrast between the human-made and the natural, with their bad and good associations respectively, is reflected in the language respondents used to describe the value of nature. As Hull and Robertson (2000) explain:

> We make billions of visits each year to natural parks and gardens. Obviously we value what is natural. Conversely, what is artificial, human-made, or developed has negative

connotations. Referring to something as unnatural or artificial is often the harshest critique one can make. (p. 100)

Ecological restoration of urban parks may then be seen to challenge the Manichean image that divides the world into the human-built or evil and the natural or good. It is a positive intervention in natural and unnatural processes of decay and deterioration that offers hope that even in the urban landscape it is possible to create natural refuges that offer urban residents the benefits of contact with nature that are widely believed to nourish the human spirit.

In Chapter 5 I discuss the broader implications of my dissertation research, not only for individual enjoyment of urban parks, but also for the role that ecological restorations in urban parks might play in the overall environmental movement. In light of urban population density, if ecological restoration of urban parks can make the benefits of being in contact with nature available to urban residents, it has the potential to reach many more people than wilderness preservation and restoration, no matter how important that is for other reasons. The plain fact is that fewer people have the opportunity to visit wilderness areas than to visit urban parks, underscoring the potential for natural areas in urban parks to bring nature to a diverse and populous user base.

CHAPTER 5

CONCLUSION

The questions that motivated the research I conducted for this dissertation reflected my interest in understanding the potential for ecological restoration of urban parks to bring urban residents closer to nature and, ultimately, to shape the human-nature relationship in urban settings. Given the opportunity to interview users of four ecologically restored natural areas in Chicago's Lincoln Park, I sought to identify the values these park users associated with urban parks, and especially to learn whether their experiences in the restored areas enabled them to enjoy benefits similar to those enjoyed by visitors to non-urban parks and natural areas. I explored these questions with two sorts of skepticism in mind.

First, some argue that it is not possible to have an authentic experience of nature in an urban setting, no matter how 'natural' such a setting may seem. An urban park is surrounded by a paved, built environment and is subject to the same environmental conditions—air, noise, and light pollution, for example—that afflict the broader cityscape beyond it. Second, some critics see ecological restoration as a quixotic enterprise wherever it is attempted; no artificially created environment is authentically 'natural.' Such skepticism applies with even greater force to urban parks, which are also built environments, even if some of the building 'materials' are trees and rocks. Indeed, I have acknowledged here that the four ecologically restored areas of Lincoln Park under study could not have been restored to a pre–European settlement condition without being immersed in Lake Michigan, as most of Lincoln Park was created on landfill. In light of these questions, how does my research provide confirmatory evidence that ecological restoration in urban parks is possible?

In this final chapter I explore the broader implications of my research, arguing that the values my respondents identified and praised as benefits of their use of the restored areas are values that most people associate with being in natural areas. I suggest that this complicates our understanding of a dichotomy that is typically posited between built and natural environments, because here we have built environments—areas resulting from lengthy processes of design, planning, and implementation—that enable users to enjoy the benefits of natural settings. Whether that justifies calling them 'natural' areas or counting the projects as ecological restorations may be a question of semantics or conceptual gerrymandering, but to many of these park users, all of whom live in one of the world's largest urban areas, being in the restored areas feels like being in nature.

As I noted in Chapter 4, a potentially important theme began to emerge as I analyzed the data, namely whether there is a relationship between the use of ecologically restored urban parks and the ways in which urban park users conceive of nature in the form of a nature-identity. Can ecological restoration in an urban park contribute to the formation of a nature-identity for urban residents? How do existing nature-identities affect how urban residents experience nature in ecologically restored urban parks? It was beyond the scope of this study to explore these questions, but my research provides a foundation on which to do so. I close the chapter by reviewing the limitations of the study and suggesting directions for related future research that would take us beyond the first steps I have taken here to a fuller understanding of and more definitive answers to my research questions as well as these questions about nature-identity.

Experiencing Nature in Urban Parks

The results of my research indicate that users of the Montrose Point Bird Sanctuary, the Bill Jarvis Migratory Bird Sanctuary, the North Pond Nature Sanctuary, and the Alfred Caldwell

Lily Pool in Lincoln Park, Chicago, perceived these ecologically restored areas as opportunities to experience or be in contact with nature. As noted in Chapter 4, these park users fell roughly into two camps—those who experience the beauty, solitude, and tranquility of nature primarily as a source of personal enrichment, and those who enjoy nature primarily for the sake of the wildlife as well as the natural landscape that plants and animals depend on to thrive, a more objective value often informed by an identification with environmental causes. Those in the former camp seemed to appreciate opportunities for contemplation or introspection, praising the quiet seclusion of the areas they enjoyed most, without caring so much about the specific species of plants surrounding them, or the authenticity of a prairie landscape. Those in the latter camp seemed to value nature intrinsically, some appreciating landscapes that replicate the native environment and others appreciating the opportunity to view birds, for example, regardless of the authenticity of the plantings that attract them. What mattered to them was that a habitat or environment had been created in which natural processes could play out as they would in the wild with proper maintenance and only benign human intervention.

I identified these two camps of urban nature enthusiasts largely through the values or benefits that respondents associated with their experiences in these natural areas of Lincoln Park. Those who appreciate nature primarily because of the personal rewards they described, as it were enriching themselves spiritually, often cited beauty, solitude, or tranquility as the values they associated with their experience in the restored areas. Those who appreciate nature primarily because they believe it is important to conserve and improve the natural environment tended to cite habitat preservation or restoration as the most important value associated with their experience in the restored areas. There was, to be sure, considerable overlap between these two camps, and some in both camps cited recreation or health as values of the restored areas.

Moreover, among respondents who selected contact with nature (both camps) or habitat restoration as the single most important value of the restored areas, most praised the areas as refuges, as spaces in which to escape the stresses of city life.

Reflecting on this analysis of the study's results raises several important issues for the broader questions posed by the use of ecological restoration as a strategy for mitigating the damage that human activity has caused in natural environments. Is ecological restoration even possible? If human intervention caused the damage in the first place, how can further intervention by human agency reverse it? If natural processes are intrinsically valuable and human activity interferes with these processes, how can an artificial process such as ecological restoration, which by definition involves human intervention, rectify this offense to nature? I conceived of this study with such questions in mind and, although the framework of the study was not conducive to yielding definitive answers, the results offer several interesting implications that represent a step towards that end.

Natural versus Built: The Conundrum of Ecological Restoration

In characterizing the projects in the four natural areas of Lincoln Park in which I conducted my research as ecological restorations, I defined ecological restoration as a process that creates as a product "a historically representative natural ecosystem" that "achieves indigenous ecological integrity" in the course of repairing damage caused by human activity. This definition captures the two key elements of ecological restoration that I have adopted from Higgs (2003), historical fidelity and ecological integrity. I acknowledge that none of the four areas satisfies my definition entirely, but all of the areas include elements that represent efforts on the part of stakeholders to achieve both historical fidelity and ecological integrity. As long as

we allow historical fidelity to be achieved through restored elements that *represent* historical features of an ecosystem or landscape, and ecological integrity to be achieved by human intervention and sustained by continuous maintenance programs and regulation of human activity, these restoration projects in urban parks count as ecological restorations.

We have seen, however, that some critics of ecological restoration argue that, by definition, no active intervention into an ecosystem can achieve either historical fidelity or ecological integrity. Once a natural ecosystem has been disturbed, it seems, there is no going back. Perhaps projects designed to improve a degraded area are worthwhile simply in virtue of the improvements they achieve, but none should be regarded as restoration of the original ecology of the area. Thus we saw that Elliot (1982) had already, before the founding of the Society for Ecological Restoration, argued that any attempt to restore the ecological integrity of a degraded area was akin to art forgery. Katz (2000) also questioned the morality of ecological restoration, attributing it to human hubris. He argued that human intervention—again apparently by definition—is incapable of creating anything that is 'natural' because such intervention changes the very meaning of that term and alters the course of a natural ecosystem.

We saw that the philosopher Light (2000) replied to Elliot by likening ecological restoration not to art forgery but to art restoration, a process that is accepted in the art world as a means of restoring a work of art to its original condition or at least to its original value as art. In response to Katz, Light argued that ecological restoration, when properly executed, can activate natural processes and is in any case a morally virtuous intervention when designed to correct the effects of human activity. More importantly, though, Light focused in his work on the potential for ecological restoration to enable humans to establish morally sound relationships with nature which, far from demanding that humans refrain from intervening in natural processes, requires

active involvement with nature to establish a relationship that is based on appreciation of natural processes and entities.

This juncture in the argument over the very possibility of ecological restoration brings us to the heart of my interest in such work, which is the relationship with nature that is made possible by ecological restoration of urban parks. If Light is right, whether an ecological restoration project achieves the apparently impossible goal of restoring an area precisely to a former natural state that needs no further human intervention to sustain it matters far less than whether it enables people to develop an understanding of, or relationship with, nature that disposes them to appreciate and preserve it. The results of this study suggest that users of the four restored areas of Lincoln Park form attitudes that should enable them to develop such an understanding or relationship. If so, this in turn suggests that those who lament the lack of a relationship with nature on the part of many urban dwellers should consider ecological restoration of urban parks as a step towards mitigating this disadvantage of urban living.

Still, it is argued that, as Light (2006) has acknowledged, because ecological restorations are “culturally produced objects,” the “restoration of the human relationship with nature” (p. 102), may be impossible through this means. A main premise of this argument seems to involve the natural/built dichotomy I discussed in Chapter 4. Those who value nature often hold the built environment in some degree of contempt, as though it lacks the intrinsic value of the natural environment. Yet my study results suggest strongly that there is a similar divide felt by my interview respondents that falls, apparently, entirely on the built side of the natural/built dichotomy, if we must classify ecological restorations, especially in urban parks—where in some cases decades or even centuries have passed since a park area was in a pristine, pre-settlement condition—as built environments. Time and again my respondents, whether those who favored

the personal enrichment they experience through contact with nature—selecting solitude and tranquility as key values —or those who favored the satisfaction that comes from sharing space with wildlife—selecting habitat restoration—praised the restored areas of Lincoln Park as refuges from city life, places in which they can escape the noise and stress of the urban environment. It mattered little to them that these areas had been created on landfill, or that the created spaces were not in the condition they would have been had no settlement of the Chicago lakefront occurred. To them, there was little or no difference between being in one of the restored areas and being in a 'natural' area that had never been disturbed by human activity.

Whatever ambiguity we may sense in the provision of natural good or value through the 'artificial' technology of ecological restoration of urban parks has been traced by Egan, Hjerpe, and Abrams (2011) to a longstanding distinction in Western culture and philosophy between the internal domain of the mind or human consciousness and the external domain of nature. Such mind-body dualism, which effectively originated with the ancient Greeks and was famously dramatized by Descartes, has persisted in Western culture through religious beliefs and linguistic custom. Given the results of my study, I am inclined towards some optimism that Egan et al. may be right in citing ecological restoration as a possible path to transcending what they call "human–nature dualism" by establishing a "reciprocal" relationship between humans and nature (p. 7). If my findings pertaining to ecological restoration represent any general principles, the implications of the natural/built dichotomy, which seem at first to leave us with mutually exclusive values (and, in the view of some, morally incommensurable calculations), may be less starkly divided than we thought. Perhaps the path to making the value of nature available to residents of urban areas runs through ecological restoration of urban parks.

These thoughts lead directly to the potential role of nature-identities for understanding how residents of urban areas may be provided with the benefits of experiencing nature. If my instincts are to be trusted here, and a person's nature-identity is a powerful source of well-being, urban residents need not despair at having insufficient opportunity to enjoy the benefits of nature. Perhaps ecological restoration of urban parks has the potential to nurture a person's nature-identity just as the natural state of wilderness or undeveloped areas outside the urban core does. Perhaps, as well, people with pre-established nature-identities who move to the city can find satisfying expression of those identities in natural areas within urban parks that have undergone ecological restoration. In any case, the nature-identity concept involves the sort of reciprocity between humans and nature that Egan, Hjerpe, and Abrams (2011) believe should be cultivated.

The potential for ecological restoration to enable such reciprocity was an important theme in Jordan (2000), who writes of community rather than reciprocity, and whose defense of ecological restoration warrants our attention at precisely this juncture in the discussion. Focusing first on ecological restoration of wild areas that have been degraded by human intervention, Jordan argues that the traditional, established environmental movement has harbored contradictory notions of 'nature' as, on the one hand, an interconnected community of all things living and non-living (which would include humans) and, on the other hand, an autonomous, self-organizing domain the intrinsic value of which is necessarily diminished by human intervention. Characterizing this as a conflict between community and wilderness, Jordan sees in ecological restoration the potential to bring humankind back into community—and communion—with nature. In fact, he sees restoration as essential to community, arguing that

> the restored ecosystem can be wild, that community quite properly *includes* the wild, and that in the hands of the best practitioners, restoration is an ongoing dialogue with nature as given, as self-organizing, and as unpredictable—in other words, as wild. (p. 27)

This argument may seem inapplicable to ecological restoration of urban parks, however, because it is difficult to see how an urban park, no matter how faithfully it is restored to some prior natural state, can long exist in that state if it is allowed to "self-organize" and become unpredictable. In the four cases of ecological restoration in Lincoln Park, for example, the proper disposition of invasive, non-native plant species posed a serious challenge in several if not all of the restoration efforts. It is likely that such vegetative encroachment results when park managers let 'nature' take its course. If Jordan is right that, ideally, ecological restoration is more about letting go than about maintaining control, then it's hard to agree with him that "if the restored landscape is not wilderness exactly, or at least not wilderness yet, it eventually will be as natural processes resume and a measure of wildness and self-creation reasserts itself" (Jordan, 2000, p. 29). But that is not the end of the story Jordan tells.

Indeed, having focused most of his argument on ecological restoration of wild areas, Jordan pivots to addressing precisely the sort of restoration that I studied in Lincoln Park, offering a series of examples that illustrate the variety of place-types that may be restored:

> It may be a coral reef that owes essentially nothing to human influence; it may be a tallgrass prairie that reflects centuries of burning by humans (but not Europeans); or it may be a deliberately designed and intensively managed landscape like Thomas Jefferson's garden at Monticello, or the peach orchard or the battlefield at Gettysburg, or a mowing meadow in France that dates back to medieval times. (Jordan, 2000, pp. 27–8)

Only one of these examples represents a natural area that had been free of human influence prior to European civilization and the colonization of other continents—a coral reef. Even pre-settlement prairies in North America were altered by human activity long before people of European descent laid eyes on them. More importantly, Jordan clearly extends the domain of ecological restoration to 'natural' areas in built environments, and this brings areas such as those that were restored in Lincoln Park squarely within the purview of his argument.

Jordan shifts the argument in this way because large-scale restoration projects in wilderness areas are rare, whereas most restoration projects

> are carried out on a small scale . . . and even if they are wild in certain respects, they represent wilderness only in miniature, a symbolic or ceremonial wilderness. And since the quality of an ecosystem and its capacity for self-organization are scale-dependent, this is a serious flaw. We can find wildness anywhere. But wilderness we rightly think of as big—big enough to more or less look after itself. (Jordan, 2000, p. 30)

The image of symbolic or ceremonial wilderness in miniature cannot help but remind us of the four restored areas of Lincoln Park, with their iconic features and, as Gobster characterized the Lily Pool following restoration, sacred gardens. How then, can ecological restoration of urban parks play a role in restoring wilderness on a scale such that it can "look after itself"?

Here Jordan returns to the theme of community, arguing that what environmentalists have struggled to create over the movement's several decades of existence is a constituency of support for their efforts, a widespread emotional commitment to preserving and, if necessary, restoring nature on a large scale. In ecological restoration on the smaller scale that characterizes the cases I've presented here, Jordan sees the potential for creating such a constituency. That is, whereas those who enjoy and work to protect wilderness areas generally follow an ethic of non-

interference, of walking lightly on the land and leaving no traces of their presence, they thereby preclude the formation of community with those areas that includes people with few if any opportunities to visit them. By precluding humans from interacting with nature in wilderness areas, the environmental movement has in effect (to cite Jordan's analogy) provided the prayerful contemplation of a religion with none of the community-building rituals or activities. Ecological restoration, on the other hand, which necessarily involves direct human intervention in nature, is

> an overt, complex, fascinating, even inherently dramatic act . . . restoration can become not only a form of recreation but also ultimately a performing art, a way of creating community and other transcendent values such as meaning, beauty, and the sacred. It is, moreover, a comprehensive act, one that does not displace traditional activities such as birding, backpacking, or botanizing, but incorporates them and adds to them, expanding the repertory of experiences and techniques available to environmentalists in carrying out their work on behalf of the natural landscape and the diversity, wildness, and even otherness—or givenness—that it represents. (Jordan, 2000, p. 32)

Thus, far from being antithetical to the objective of leaving wild areas to the natural processes that shape them over the eons, ecological restoration, even of urban parks, can create among those who enjoy those areas a commitment to supporting wilderness preservation or restoration efforts on a larger scale. It does this, moreover, with

> the landscapes that most people actually inhabit, the urban parks, rights-of-way, stream corridors, and vacant lots of the urban-suburban landscape that have, or can be made to have, a powerful symbolic relationship with larger and more remote wilderness areas. (p. 32)

Returning to the results of my study, it is worth considering how the four restored areas of Lincoln Park might play such a role in the broader environmental movement as representative cases of ecological restoration of urban parks. We have seen that my respondents may be divided, at least roughly, into those who experience the parks as sources of personal enrichment and those who experience the parks as symbols of wild nature inhabited by wildlife. If these two modes of experience correspond to distinct nature-identities, it is possible that ecological restoration of urban parks serves larger objectives through its capacity to enable users to form or refine their own nature-identities. Insofar as a nature-identity would be, by definition, an emotional bond with a type of nature or a type of nature experience, such a bond may provide the ground on which to cultivate the sort of commitment to large-scale wilderness preservation that Jordan believes is a possible outcome of ecological restoration.

Although my study was not designed to test my ideas about nature-identity, it does demonstrate that ecological restoration of urban parks can provide users with what they perceive to be authentic contact with nature, and thereby enable them to enjoy a range of values that are widely associated with being in nature such as solitude, tranquility, beauty, recreation, and wildlife observation. Thus, even though ecologically restored natural areas in urban parks are, in Jordan's terms, "partly artificial and partly natural" (Jordan, 2000, p. 24), and the restored landscape is in that sense "a landscape of ambiguity" (p. 24), such projects provide urban residents with opportunities to form a community with nature and, perhaps, with nature-identities. Ecological restoration of urban parks might then represent not merely a minor tributary of the main stream of the ecological restoration movement or indeed of the broader environmental movement, but instead a uniquely critical headwater without which there will be no general constituency favoring environmental protection and preservation:

> This spinning of environmental straw into gold is tremendously encouraging and dramatizes, in a way that wilderness experience by itself does not, the hopeful idea that humans can influence even complex ecosystems in positive ways and, by extension, do belong on this planet—a notion that much of the environmental rhetoric of recent decades has left very much in doubt. (Jordan, 2000, p. 32).

Limitations and Directions for Future Research

This study was subject to several limitations due largely to the circumstances under which I conducted it, as I was given permission—and funding—to collect data pertaining to my research questions only within the context of the POE I was already conducting for the Forest Service–City Design Center regarding the four restored areas of Lincoln Park. I have noted, for example, that this precluded me from pursuing follow-up interviews with respondents, which would have been required to have generated a comprehensive grounded theory. So I used the opportunity to conduct the POE as a means of gathering data that would indicate the values and benefits that users of the four restored areas associated with their experience of an ecologically restored urban park and in particular to understand whether and how the park areas enabled users to be in contact with nature. Moreover, that portion of the research was part of a broader case study illustrating ecological restoration in an urban park, a case study comprising the four component cases. A case study by design is limited in terms of the generalizability of its results, in part because it is difficult to make comparisons "across cases" (Francis, 2001, p. 2), although case studies can contribute to theory-building.

Properly understood, then, given the circumstances, the dissertation research was designed as an exploratory study that would enable me to develop themes to be explored in

subsequent research, which I outline below. To be sure, the results of the study contribute to a comprehensive theoretical evaluation of the general principles by which ecological restoration in urban parks can shape how urban residents perceive and experience nature, a scholarly enterprise that has already generated a large body of literature. Even so, to allow for a full evaluation of the study's capacity to make such a contribution, its limitations must be acknowledged.

The extent to which the study did not produce generalizable results was due primarily to its sampling framework. Because the sample from whom the interview respondents were drawn consisted only of people who were present in the park areas, the sample does not represent a broad population demographically. This was because the vast majority of respondents were residents of neighborhoods that were adjacent to or nearby those park areas, and these neighborhoods are generally more affluent than most in the city of Chicago. Thus the sample lacked socioeconomic, racial, and educational diversity compared with the broader Chicago population (the sample at Montrose Point was somewhat more diverse than those at the other sites, but this may have been due to its being passed through by users who were intent on enjoying activities outside the specific study area). To explore the nature-identity theme in greater depth, for example, it would be important to expand the diversity of the respondent sample. Moreover, even if the sample were representative in these senses, it would perhaps not represent similar populations in other cities. Only additional studies of ecological restoration in urban parks with stronger demographic controls that include a range of cities in terms of size and geographic location could determine the likelihood that these issues affected the generalizability of the results.

These sampling issues aside, the study's purpose was to identify the values users of the ecologically restored park areas associated with urban parks through their use of these areas and

to understand whether and how the areas influenced users' relationships with nature. We sought to interview nearby urban residents by design, and the demographic and other characteristics of the sample did appear to represent the immediate target population, which was nearby residents who use the park. It would seem therefore that the most serious challenge to the usefulness of the sample was that it was drawn almost exclusively from one area of one city in one region. Urban park users from other areas of Chicago and other cities and regions might have responded very differently to the same survey instrument.

Although the size of the respondent sample might seem small, with N=80, it was adequate for its role in the study, which was to gather qualitatively richer data than was possible with the observation sample (N=1,280). Again, the interviews were conducted for the purpose of exploring the values users associated with the restored park areas and to shed light on the effects of such use on the human–nature relationship in urban settings. To these ends the respondent sample proved to be highly informative, yielding useful results regarding the research questions and generating an interesting theme, that of nature-identities, that warrants further investigation. Ultimately, research with larger and more diverse samples, covering a wide range of neighborhood types, urban areas, and regional ecosystems, is needed to develop a comprehensive theory of ecological restoration in urban parks that fully explains its potential for achieving for urban residents what it is intended to achieve for everyone in larger natural areas. To this end, more comprehensive grounded theory research should also be conducted, especially regarding the potential for urban restorations to enrich the human–nature relationship and enable park users to develop their nature-identities.

There were other respects in which the results of this research may have been compromised to some extent. For example, the restoration projects under study had been

completed only recently, there was construction near or even within the areas (work at the perimeter of the area studied at Montrose Point was still occurring), and except for the Bird Sanctuary the perimeters defining the areas in which users were surveyed were determined somewhat arbitrarily (see Appendix G). It is possible that surveying users several years after this research was conducted, expanding or contracting the areas in which users were observed or interviewed, and controlling for external distractions such as construction would have changed the results.

Given its exploratory purpose, the study yielded a potentially interesting theme that deserves further study. To comprehensively evaluate the theoretical and practical success of ecological restoration in urban parks, I recommend additional investigation of the concept of nature-identity as a factor that could play a role in shaping how people view and behave in ecologically restored urban parks. This would require incorporating several themes into interview or survey instruments. Such a study would begin with developing a fuller and deeper understanding of how people conceive of nature as they experience it in various types of locations, such as urban parks, state and national parks and forests, and wilderness areas, at various times in their lives. What counts as being in nature for individuals from a range of backgrounds? In my study, for example, observing wildlife included seeing semi-domesticated ducks walking along a path and peering through binoculars at wild migratory birds high in treetops, and respondents pointed to both as instances of being in contact with nature, perhaps reflecting differing nature-identities. To develop and theorize the nature-identity concept, both large-scale surveys and in-depth interviews could provide useful data.

The results of this study also suggest that additional work is needed to understand how the natural/built dichotomy plays into the future of ecological restoration, particularly in urban

parks. How much does it matter to individuals that a natural area has been created or modified by deliberate restoration and management practices? This issue looms large in philosophical discussions of ecological restorations, but there have been few empirical studies to indicate whether users of or visitors in restored areas, urban or otherwise, view the areas as having less intrinsic value than areas that are as close as possible on our small planet to having remained unaffected by human activity over the millennia. How does the knowledge that an area has been restored affect the experience of those who visit the area? Here again we need more data regarding how people conceive of or identify with nature, or with personal concepts of nature, so any research on the effects of the natural/built dichotomy on individuals' experience of nature may well bear implications for the nature-identity issue as well.

Exploration of these themes in future research should also prove relevant to the *practice* of park design. In this connection Gibson's (1977) pioneering work in visual perception of the environment, which introduced the concept of 'affordances' or opportunities through visual perception to make features of the environment or landscape more accessible to people in particular spaces, might usefully inform both research that would extend my findings and park design. The four cases of ecological restoration under study here all included affordances that were designed to create opportunities for contact with nature on the part of park users. It is worth reviewing some of these to indicate how park planners might enhance contact with nature in urban parks for a wide range of users and to identify design elements that merit investigation.

If we begin with Montrose Point, we can identify several features that play the role of affordances that encourage contact with nature to varying degrees. For example, the restoration work added mowed pathways around the perimeter of the prairie grass area that affords views of the natural features from many angles. Among these angles, one corresponds to Caldwell's "long

view," which permits users to gaze across a prairie, through trees, with the Chicago skyline in the distant background. Although the Magic Hedge was installed to shield other areas of the park from the missile defense installation, it was highly valued by users who are interested in birding, an activity that was further enhanced by the addition of a water feature designed to attract birds. Affordances added to or enhanced at the Bird Sanctuary included new gravel paths around the perimeter that facilitate movement around the area, new fencing affording better views of the protected interior, a wheelchair-accessible viewing stand with benches, and the placement of dead trees to provide bird and wildlife habitat. North Pond's enhanced affordances included new wood-chip paths and benches to bring users closer to newly planted native vegetation, a new path around the ecologically restored shoreline of the pond, several overlooks, and a large viewing platform that provides a panoramic view of the pond as well as the urban skyline. Finally, at the Lily Pool, stone pavilions as well as the stone council ring were built or restored, and wheelchair accessible paths were added.

If we now consider how the abovementioned affordances may accommodate users whom we can associate with the two nature-identities that I identified during data analysis, we can see that it is possible not only to align affordances with one or the other, but also to see how some affordances might accommodate alternative nature-identities among urban dwellers. For example, the nature-identity that I have associated with finding personal enrichment through contact with nature is accommodated by affordances such as the Lily Pool's stone pavilions or North Pond's paths and benches. These features in effect enable users to be completely surrounded by nature while visiting those park areas. On the other hand, the Magic Hedge at Montrose Point and improved viewing from the perimeter into the interior of the Bird Sanctuary are likely to accommodate those whose nature-identity is oriented towards appreciating the

intrinsic value of nature and life-sustaining wildlife habitat. Park designers seeking to bring users into contact with nature should consider adding similar affordances that will attract and benefit users who have developed those (or similar) nature-identities. Accordingly, future research should be designed to focus more sharply on the degree to which such affordances are seen by users with these nature-identities as fulfilling experiences that reinforce their nature-identities.

Other affordances I have mentioned above may accommodate nature-identities that did not emerge as clearly from my data as the two I have discussed but are likely to be found among urban residents. As I have shown, two of the restored areas in particular—Montrose Point and the Bird Sanctuary—are accessed quite often by users who are less interested in those areas for their own sakes than in passing through or around them to pursue other activities, such as fishing, playing soccer or other sports, or jogging along the lakefront. Both Montrose Point and North Pond offer spectacular views that combine the natural beauty of those areas with the stunning backdrop of the Chicago skyline. We might say, then, that the path around the Bird Sanctuary, the long view in Montrose Point, and the viewing platform at North Pond all fail in some way to perfectly accommodate either of the nature-identities I've identified. People who seek personal enrichment in tranquil wooded settings or within view of moving water would likely have little interest in those features. Similarly, those who seek contact with nature to appreciate its larger meaning as habitat and unspoiled beauty might be disappointed by views that include skyscrapers in the background.

Perhaps, then, there is a type of nature-identity that is peculiar to urban residents that does not gravitate to areas in which users are as it were fully immersed in a natural setting but rather prefers a setting in which the familiar built features of the urban environment—complete with convenient access to stores and transportation—remain within perceived reach. It is likely

that there are long-term urban dwellers who feel uncomfortable in a remote setting and prefer an urban environment. My research suggests that it is at least possible that such urbanites nevertheless can develop a nature-identity whereby contact with nature that merely augments urban life rather than serves as a temporary refuge from it—many of my respondents sought such refuge in the restored areas—is preferred. These people might prefer the long view at Montrose Point or the view of the nearer skyline across North Pond to being fully surrounded by nature at the Lily Pool. To them the Bird Sanctuary's perimeter path is as close as they want to be to getting dirt on their hands or moisture on their shoes from more direct contact with nature. On the other hand, I have cited research showing that contact with nature is psychologically beneficial to urban residents, even if they're not aware of it. So park designers wishing to accommodate a nature-identity that dislikes total immersion in nature might design park affordances that bring users interested in pursuing other activities into limited contact with nature, thereby affording them some of the benefits of contact with nature without discouraging them from visiting urban parks.

If these considerations make sense, then future research should incorporate observation and interview instruments designed specifically to identify and tease out the effects of the nature-identities I have discovered or suggested, or perhaps confirm the existence of yet more that correspond to a wider range of urban residents and their experiences of nature within the urban environment. Certainly the ecological restorations at Lincoln Park themselves could accommodate a range of research studies that would target the degree of accommodation between specific nature-identities and specific affordances.

Ultimately this study may prove to have taken only a small step towards answering some very large questions, but if it takes a step forward then its contribution will be noteworthy,

because urban parks are accessible to many more people than wilderness areas are, requiring little in the way of investment in time and money to be enjoyed. If ecological restoration in urban parks was more widespread, and it enables urban residents to experience nature in an authentic sense, it has the potential to enrich urban life in a way that compensates to some extent for the unavoidable loss of nature that urban development necessarily means, bringing the benefits of contact with nature to millions of people who would otherwise never enjoy them.

APPENDIX A

RESEARCH APPROVALS

UIC COLLEGE OF
UNIVERSITY OF ILLINOIS AT CHICAGO ARCHITECTURE & THE ARTS

School of Architecture (MC 030)
3100 Art and Architecture Building
845 West Harrison Street
Chicago, Illinois 60607

December 28, 2012

To Whom It May Concern:

Elizabeth Kocs has permission to use the data from the Lincoln Park Study for any academic purpose. The data collection procedures received IRB approval and all individuals who were interviewed and observed had no identifiers. When using the data, appropriate credit should be cited as follows: Data collected as part of the Lincoln Park Evaluation Study, City Design Center, College of Architecture, Design and the Arts, University of Illinois at Chicago

Sincerely,

Roberta M. Feldman, M.Arch, Ph.D.
Founding Director Emerita, City Design Center
Professor Emerita, School of Architecture
College of Architecture, Design and the Arts
University of Illinois at Chicago

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Exemption Granted

April 22, 2004

Roberta Feldman, PhD
City Design Center
820 W Jackson, Suite 330
M/C 039
Chicago, IL 60612
Phone: (312) 996-3511 / Fax: (312) 996-2076

RE: Research Protocol # 2004-0264
"Post Occupancy Evaluation of Urban Park Natural Area Restorations: Lincoln Park, Chicago"

Dear Dr. Feldman:

Your Claim of Exemption was reviewed on April 16, 2004 by members of the Institutional Review Board (IRB) #3 and/or senior members of the OPRS staff. It was determined that your research protocol meets the criteria for exemption as defined in the U. S. Department of Health and Human Services Regulations for the Protection of Human Subjects [(45 CFR 46.101(b)]. You may now begin your research.

The specific exemption category under 45 CFR 46.101(b) is:

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

You are reminded that investigators whose research involving human subjects is determined to be exempt from the federal regulations for the protection of human subjects still have responsibilities for the ethical conduct of the research under state law and UIC policy. Please be aware of the following UIC policies and responsibilities for investigators:

1. Amendments You are responsible for reporting any amendments to your research protocol that may affect the determination of the exemption and may result in your research no longer being eligible for the exemption that has been granted.

2. Record Keeping You are responsible for maintaining a copy all research related records in a secure location in the event future verification is necessary, at a minimum these

documents include: the research protocol, the claim of exemption application, all questionnaires, survey instruments, interview questions and/or data collection instruments associated with this research protocol, recruiting or advertising materials, any consent forms or information sheets given to subjects, or any other pertinent documents.

3. Final Report When you have completed work on your research protocol, you should submit a final report to the Office for Protection of Research Subjects (OPRS).

4. Information for Human Subjects UIC Policy requires investigators to provide information about the research protocol to subjects and to obtain their permission prior to their participating in the research. The information about the research protocol should be presented to subjects in writing or orally from a written script. When appropriate, the following information must be provided to all research subjects participating in exempt studies:
   a. The researchers affiliation; UIC, VACHCS-WS or other institutions,
   b. The purpose of the research,
   c. The extent of the subject's involvement and an explanation of the procedures to be followed,
   d. Whether the information being collected will be used for any purposes other than the proposed research,
   e. A description of the procedures to protect the privacy of subjects and the confidentiality of the research information and data,
   f. Description of any reasonable foreseeable risks,
   g. Description of anticipated benefit,
   h. A statement that participation is voluntary and subjects can refuse to participate or can stop at any time,
   i. A statement that the researcher is available to answer any questions that the subject may have and which includes the name and phone number of the investigator(s).
   j. A statement that the UIC IRB/OPRS or VACHCS-WS Patient Advocate Office is available if there are questions about subject's rights, which includes the appropriate phone numbers.

Please be sure to:

→Use your research protocol number (#2004-0264) on any documents or correspondence with the IRB concerning your research protocol.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact me at (312) 413-3202 or the OPRS office at (312) 996-1711. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Teresa D. Johnston, B.S.
IRB Coordinator, IRB #3
Office for the Protection of Research Subjects

Enclosure: (1) Form 310 - Protection of Human Subjects, Assurance Identification/Certification/Declaration

cc: Brent Ryan, Co-Director, City Design Center, M/C 039

APPENDIX B

INTERVIEW INSTRUMENT

CITY DESIGN CENTER UNIVERSITY OF ILLINOIS AT CHICAGO
820 WEST JACKSON BOULEVARD, SUITE 330
CHICAGO, IL 60607-3026

Post Occupancy Evaluation of Urban Park Natural Area Restorations: Lincoln Park, Chicago

Interview Questionnaire Instrument

Date & Day of week: ____________________ Interview #: ____________________
Time: ________________________________ Interviewer Name: _______________
Weather Conditions: ____________________
Interview Location: _____________________

INTRODUCTION
Instruction to Interviewer: Say the following to a potential subject – ***(SCREEN FOR TRANSIENT)***

Hi, my name is ___________________________. I am from the City Design Center at the University of Illinois at Chicago. We are working together with the U.S. Forest Service to better understand how users feel about this area of Lincoln Park. May I ask you some questions? It will only take 10-15 minutes. ***(SCREEN FOR ENGLISH LANGUAGE DIFFICULTIES)***

If NO: Thank you for your time.
If YES: May I tape record your answers? It will help me describe people's answers. You won't be identified in anyway.

If YES: Continue with interview.
If NO: Thank you for your time.

1. How often do you visit this area of the park?
   (Probe: every day, 2-3 times a week, 1/week, 2-3/month, 1/month, less than 1/month)
   (SCREEN FOR 1ST TIME VISITOR/TOURIST)
   *** If person is a first-time visitor or tourist, say "Thank you for your time, but unfortunately we need to speak to people that visit this area more often."

   a. How many years have you been visiting this particular area?
      i. (Probe: less than 1 year, 1-2 years, 3-5 years, 5 or more years)

   b. Why did you visit this area of the park today?
      i. (Probes: What are you planning to do here today? What have you done here? What kinds of activities do you usually do here?)

In the next few questions, we are particularly interested in this area:

of **North Pond**, which is bounded by the path and café on the north, the lawn area and nature center on the east, the paved path along Fullerton on the south, and the lawn and paths on the west.

called **Lily Pool**, which is bounded by the fence.

of **Montrose Point**, bounded by the Magic Hedge on the west, the beach on the north, the construction and the lake on the east, and the construction and W. Montrose Harbor Drive on the south.

in and around the **Bird Sanctuary** – It is bounded by a path on the south, east and north sides, and by Belmont Harbor Drive on the west side. It is completely fenced in with walking path surrounding it.

2. What do you like best about (NP, LP, BS, MP)?
    a. Why?

3. What do you like least about (NP, LP, BS, MP)?
    a. Why?

4. People have different ideas about the benefits and values of urban parks.
   Here is a list of the values most frequently mentioned. Feel free to add your own if it is not on the list.
   (Instruction to Interviewer: Hand person card with typewritten list.)

    BEAUTY
    SOLITUDE
    TRANQUILITY
    RECREATION
    HEALTH
    CONTACT WITH NATURE
    NATIVE HABITAT PRESERVATION / RESTORATION
    COMMUNITY AND/OR CITY IDENTITY
    PUBLIC LIFE
    TOURISM
    OTHER – please describe

    a. Which are the most important to you? Why?
    b. Out of the values you mentioned, please choose the most important one to you.

5. Has (NP, LP, BS, MP) changed in recent years? YES / NO / DON'T KNOW
    a. If YES:
        i. What has changed?
           Probe: Any changes in the landscaping or other physical features?
        ii. If NO or DON'T KNOW (recent users, can't remember):
           (Instruction to Interviewer: If person answered NO or DON'T KNOW, continue to question 6.)

6. (Instructions to Interviewer: Hand person list of changes to that area. See attached chart listing landscaping changes.)
   Here is a list of changes that have been made to the landscaping and physical features of this area.
    a. Which changes are most important? / Why?
    b. Which changes are least important? / Why?

7. Are there other changes you would make to this site if you could?

To assist us in understanding people's responses, we would like to know some information about you. Your answers to this portion of the interview are optional.

8. Have you been involved in nature conservation and /or environmental sustainability activities or groups? YES / NO
   a. If so, what kind?
      Probe:
      i. Professional
      ii. Volunteer
      iii. Member of Organization
      iv. Knowledgeable Park User
      v. Contributor

9. How old are you? ____________
   (Instruction to Interviewer: if person chooses not to answer, record an observable age:

   [18-24] [25-30] [31-40] [41-50] [51-60] [61-70] [70+]

10. What zip code do you live in? ____________________

11. What do you do for a living? ______________________________

12. What is the highest level of education you have completed?
    ___ Grade school
    ___ High School
    ___ College (2 yr.)
    ___ College (4 yr.)
    ___ Graduate

13. What is the combined income for all members of your household? _________
    [under $10,000] [$10,000-$19,999] [$20,000-$29,999]
    [$30,000-$39,999] [$40,000-$49,999] [$50,000-$74,999]
    [$75,000-$99,999] [$100,000-$149,999] [$150,000-$200,000]
    [over $200,000]

14. What do you consider to be your race or ethnicity?

15. (Instructions to Interviewer: Record observable gender.)
    ____Male / ____Female

APPENDIX C

OBSERVATION INSTRUMENT AND KEYS

CITY DESIGN CENTER

UNIVERSITY OF ILLINOIS AT CHICAGO
820 WEST JACKSON BOULEVARD, SUITE 330
CHICAGO, IL 60607-3026

Post Occupancy Evaluation of Urban Park Natural Area Restorations: Lincoln Park, Chicago

Observation Instrument

PART A (Instructions for Observer: Complete PART A of observation instrument.)

Park Location		Date	
Observation #		Day of Week	
Weather		Time of Day	
Season		Observer	

PART B (Instructions for Observer: Walk predescribed route. Unobtrusively observe users and record observations below.)

Location (if applicable)	**Gender (M/F)**	**Age Group (Child/Youth/Adult)**	**Race Mix (W/B/A/L/O)**	**Activities in Observation Location** (use appropriate codes for activities in bold)																												
				walking	**jogging**	**standing**	**sitting**	**laying**	**sleeping**	**mobility device**	**gazing**	sign reading	reading	eating	cooking	**birdwatching**	birdfeeding	feeding animals	dog- walking	playing fetch	touching water	fishing	socializing	talking cellphone	sexual activity	**active recreation (list)**						**other (list)**

CODES:

For RACE:

- W = White
- B = Black/ African American
- A = Asian / Pacific Islander
- L = Latino
- O = Other (specify)

For WALKING, JOGGING, & STANDING:

- PP = Paved Path
- GP = Gravel Path
- WP = Woodchip Path
- UP = Unintentional Path
- DP = Dirt Path
- GR = Grass
- F = Fence
- O = Other (specify)

For SITTING, LAYING, & SLEEPING:

- B = Bench
- C = Chair
- G = Ground
- P = Pier
- S = Stone
- O = Other (specify)

For MOBILITY DEVICE:

- W = Wheelchair
- C = Cane/ Walker
- S = Stroller/ Wagon
- B = Bicycle/ Tricycle
- R = Rollerskates/ Board
- O = Other (specify)

For GAZING:

- B = Bird/ Animal
- L = Landscape Feature
- Ph = Photography
- A = Art Production
- O = Other (specify)

Key for Observation Instrument:

Number of Individuals:
Enter the appropriate number of individuals that are engaging in an activity, i.e., 1, 2, 5, etc.

Gender / Age:
Enter the observable gender of each individual.
Female = F
Male = M

Enter the observable age of each individual using the following chart:
Under 5 years old – SMALL CHILD = SC
6–12 years old – CHILD= C
13–18 years old – TEENAGER = T
19–25 years old – YOUNG ADULT = YA
25–35 years old – ADULT = A3
35–45 years old – ADULT = A4
45–55 years old – ADULT = A5
55–65 years old – ADULT = A6
65+ years old – SENIOR = S

If there is more than one individual, then enter the number of each gender type and the appropriate age category. For example, if there are 3 individuals which consist of 2 females—one 50 year old adult and one 10 year old child—and 1 male 8 year old child, then enter FA5/FC/MC.

Race/Ethnicity:
Enter the observable race/ethnicity of the individuals using the following codes:
African American/ Black = B
Asian American/Pacific Islander = A
Euro-American/White = W
Hispanic-Latino(a) = L
American Indian/Alaskan Native = N
Other = O

APPENDIX D

CRITICAL DIMENSIONS OF CASE STUDIES IN LANDSCAPE ARCHITECTURE

Baseline information/context—List the location, size, client, designer(s), consultant(s), density, land use type, etc.

Roles of the key participants—What are the roles of the landscape architect and other professionals? Client? Users? What is the nature of the team? Who leads the team? What is their role in the beginning of the project? How does this change during the course of project?

Financial—List the initial budget and the final costs. What are the reasons for any differences?

Process—What is the political process? Decision making process? Design process? Implementation Process? Who influences a project's decisions and outcomes? Why? How does the project come together?

Definitions of and responses to problems—What problem(s) is the project trying to solve? Was it solved? If so, how? If not, why not? Were other problems solved?

Goals—What are the key goals (social, ecological, aesthetic)? How were they set? Who defined them? Did the goals change during the course of the project? If so, how?

Program—How was the program developed? Who developed it? Was it modified during the course of the project?

Design—What are the key design concepts? The inspiration for form? How did the designer translate goals into form?

Site visit(s)—What does the project look like? How does it work? How does it feel?

Use—How is the place used? Who uses it? Who does not use it?

Maintenance and management—What are the problems of management and maintenance? What are the maintenance costs? How is the project perceived by space managers?

Perception and meaning—Describe how the place is perceived and valued.

Scale—What is the size of the project? Dimensions of key elements? Amount of site coverage and impervious surface?

Time—How well does the place fare over time? How does the project age incrementally?

Unique constraints—How were they addressed in the process?

Community—How is the community served by this project? What is its social impact? Meaning?

Environmental sensitivity and impact—How is the environment served by this project? What is its contribution to sustainability?

Impact on profession—How is the profession served by this project? What does it contribute to the professional knowledge base?

Infrastructure—What are the underlying challenges of the site? Technological constraints?

Lessons learned—Describe the site-specific lessons learned in comparison to the more general lessons?

Theoretical underpinning—Why was the project done? What are the question(s) it is trying to answer? Problem(s) it is trying to solve?

Outside critiques—Include critiques by awards jury, experts, users, review committees, design critics, and journalists. Has there been any controversy associated with the project? Has this been resolved? If so, how?

Source: Francis, 2001, p. 13.

APPENDIX E

SUMMARY OF PILOT DATA COLLECTION

City Design Center
College of Architecture and the Arts
University of Illinois at Chicago

"Post Occupancy Evaluation of Urban Park Natural Area Restorations: Lincoln Park, Chicago"

Summary of Pilot Data Collection August 2004

Observation Instrument Pilot

We carried out three pilot observations for each of the four areas for a total of 12 observations to assess the observation instrument and reliability of data collection for different observers. Discrepancies across the data emerged. These appear to be the result of: the varying speeds with which the observer recorded data; time lapse occurrences in recording the data, hence changes in people's behaviors; cultural differences (one of the observers was from Japan, the other from Germany); and the coding system which did not allow for recording of all instances of simultaneous behaviors. In addition, observers had difficulty determining when a subject was Latino. As a result, the observation instrument was refined as follows:

- We changed the activity coding to include not just one or two activities, but three. These activities are primary, secondary, and tertiary, where every person gets coded for a primary activity, and only secondary and tertiary if applicable. The activities for each activity category are mutually exclusive; that is, a person should not be doing more than one activity in each category.
- Further, we created a separate code for park user, where we identify whether the person is a park visitor, park staff/volunteer, or transient.
- We will reassess the Latino category when we start data collection. Both data collectors will be from the U.S., hopefully improving reliability of observations of people's race/ethnicity.

Interview Instrument Pilot

We conducted a total of eight interviews, two at each location. Fortunately, we were able to interview persons of diverse ethnic backgrounds. As a result of these interviews, we made the following refinements to the interview instrument.

- We decided to eliminate the first question, which contained general questions about Lincoln Park. Persons being interviewed tended to respond to this question as if asked about the specific area in which the interview took place; hence this question became redundant with question 2.
- A number of persons interviewed had difficulty with the Benefits and Values of Urban Parks question. Some felt that "Nature Conservation" and "Restore Native Biodiversity" were similar or the same. All but one did not understand the term, "Restore Native Biodiversity." We felt that "Nature Conservation" should be eliminated from the list, and more understandable, lay language be found to replace it and "Restore Native Biodiversity" with one term.

- We had thought it was appropriate to exclude first time visitors and people for whom English was a second language. In the pilot, we interviewed one of each of these individuals to assess this decision. In both of these instances, the interviews did not provide data that would meaningfully inform the Post Occupancy Evaluation, confirming our assumption. We will exclude first time visitors and persons with limited English language skills, with the understanding that this is a limitation of the study.

APPENDIX F

OBSERVATION SCHEDULE

OBSERVATION SCHEDULE

1 48 observations total over the year will be conducted. 12 for each park area.

2 For each of the 3 seasons - spring, summer and fall, 4 observations of each park area will be conducted.

3 Out of those 4 observations, 2 will be on weekdays and 2 will be on weekends (one on Saturday, one on Sunday).

4 Observations can be conducted in numerous ways. To be consistent, chose one and use it thoroughout data collection.
   a If all 4 park areas are observed within the time frame alotted, in any one season, the observer will only visit the sites 4 times, collecting observation data for each park area for that day of week and time period.
   b If 2 park areas are observed within the time frame alotted, in any one season, the observer will need to visit the sites 8 times.

5 Below is a chart indicating the four time periods that each observation must cover for each of the 4 park areas.

	TIME PERIODS			
	8AM - 11AM	11AM - 2PM	2PM - 5PM	5PM - 8PM
WEEKDAY	NP,LP,BS,MP		NP,LP,BS,MP	
WEEKEND	NP,LP,BS,MP		NP,LP,BS,MP	

6 If it rains, the observer will plan the observations for the next available non-rain day that complies with the schedule.
   a For example, if an observation was planned for a Saturday and it is raining, the observer will plan to observe the following day, Sunday.
   b If a Sunday observation has been completed for that season, then the observer will need to wait until the next available non-rain Saturday.
   c For weekdays, if a rain day occurs, the observer is to conduct the observations on the next available non-rain weekday.

7 Each season is to be divided by the number of weeks and observations conducted across those weeks on an equal basis, so that observations will be held in each of the months of that season.

8 The observation schedule will cycle through a sequence of the park areas.
   a If the order / sequence is laid out to be LP-NP-BS-MP, then the following observation sequence will be NP-BS-MP-LP, and the following BS-MP-LP-NP.

APPENDIX G

SAMPLING PROCEDURE

Sampling Procedure

Site

The USDA Forest Service supplied the four Lincoln Park areas to be studied, based on recent ecological restorations that were implemented at these locations. Each park area was unique. Two of them, North Pond and Lily Pool, were adjacent to each other but separated by a major through street.

The boundaries for each site were determined based on the individual characteristics of that site.

Lily Pool was the most obvious. It is completely surrounded by a fence with two entrance gates. The site boundary for Lily Pool was then determined to be within the fencing and gates.

Montrose Point was also relatively straightforward. Montrose Point is surrounded by a construction fence on almost three sides—the east, and parts of the south and north sides. This provided a clear partial boundary for Montrose Point. The Magic Hedge, which sits on the western edge of this restoration, presented another boundary. However, since it is used on both sides, the western boundary was determined to include the low, no-mowing, prairie area on the west side of the Magic Hedge. The south side of Montrose Point was visibly delineated by the construction fence and the adjacent sidewalk along Montrose Ave. The north side had the construction fence and the concrete wall separating the sandy beach area from the more park-like area of Montrose Point. The sandy dunes on the north side of the concrete wall, also a part of the restoration, were included in the site boundaries visually. In other words, any activity that was taking place in the emerging sandy dune area could be readily observed from the concrete wall. Activity in this area was prohibited.

The Bird Sanctuary itself was completely fenced in. The area where people would use the restored park was immediately alongside this fence. A series of paved, gravel and woodchip paths provided the boundary for this park area. The paved and gravel path around the fenced bird sanctuary was included as well as any benches on the outer perimeter of this path. The lakefront bike and run trail that skimmed the west side of the Bird Sanctuary was excluded from the park area to be studied since this use was simply adjacent and not integral to the restoration.

North Pond was the most complex site out of the four sites, with many adjacent activities and expanses of park land that served multiple purposes beyond just the restoration. The restoration efforts at North Pond focused on paths and the park and pond areas inside of these paths. As a result, the paved and gravel paths closest to the pond facilitated in establishing a boundary for North Pond. Benches just beyond the paths were also included within the boundary of North Pond's site. Due to the high usage of the Fullerton path and the paved paths along Stockton Drive and John Cannon Drive, these paths were excluded from the site boundary. The adjacent playground, restaurant, and nature center were also excluded since they were not part of the restoration efforts. Activities that occurred on the lawn areas on the east and west sides of the pond would be noted in field notes.

Site Locations

Each park area was subdivided into smaller areas called restoration areas (site locations?). These subdivisions allow for a closer look at specific restoration efforts.

Lily Pool was subdivided into 7 restoration areas: Fullerton Entrance, North West, Pavilion Area, South West, Zoo Path, Council Ring, and East Path. These restoration areas were determined by specific restoration efforts, such as the Fullerton Gate, the restored pavilions and

council ring, and their immediate surroundings, as well as longer paths with specific purposes, such as getting to the zoo, or accessible vs. non-accessible paths.

Montrose Point was subdivided into 4 restoration areas: Outer Paths, Low Meadow, Magic Hedge, and Beach Path. Montrose Point was one of the more complicated sites to subdivide because there are vast expanses of natural habitat with very different characteristics. These different types of natural habitat aided in settling on restoration areas. First, the Magic Hedge was a very specific and important part of the restoration effort and as such needed a subdivision by itself. The paths and immediate areas adjacent to the Magic Hedge were also included in this restoration area. The Low Meadow was a clearly delineated area within this park site. The Low Meadow and its surrounding paths became another subdivision. The Outer Paths included the area immediately next to the construction fence. This restoration area, although similar to the character of the Magic Hedge, was unique to the site, in that the plants were mostly mid-level bushes and trees, with many small intentional and unintentional paths. It was also very secluded. The Beach Path included the multi-level vegetation area adjacent to the beach and its paths. Although its vegetation is similar to the Magic Hedge and the Outer Paths, the character of this restoration area is quite different due to its proximity to the beach and views of the beach, the dunes, the lake, and the fishing pier.

Bird Sanctuary was subdivided into 5 restoration areas: South, East, Viewing Platform, North, and West. The Bird Sanctuary and its surrounding paths were virtually shaped like a rectangle. For that reason and due to the uniqueness of each side, the restoration areas were determined to be the four different sides of the fenced-in Bird Sanctuary. In addition, since the Viewing Platform was large part of the restoration effort for the Bird Sanctuary, it received its own restoration area designation.

North Pond was subdivided into 13 restoration areas: West Prairie, West Restoration, Gravel Path, West Dirt Path, Gazebo Area, Fenced Path West, Viewing Plaza, East Fenced Path, East Restoration, East Dirt Path, Paved Path, Casting Pier, and South Path. These subdivisions were based on the extensive restoration efforts at North Pond. Each restoration area reflects the unique quality of that subdivision. These areas were also established by changes in the physical properties of the site. For example, the cast iron fence was not only a part of the restoration efforts but also a visible change in the landscape of the area, thus lending itself to its own subdivision. This applies to many of the restoration areas of North Pond including Gazebo Area, Fenced Path West, Viewing Plaza, East Fenced Path, and Casting Pier. The restoration areas West Prairie and East Prairie reflect specific restoration efforts. The remaining restoration areas indicate paths and areas in between the other subdivisions.

APPENDIX H

CODING FORM

CONTENT ANALYSIS CODES

FREQUENCY OF USE	
1	EVERY DAY
2	4-5 x WEEK
3	2-3 x WEEK
4	1 x WEEK
5	2-3 x MONTH
6	1 x MONTH
7	< 1 x MONTH
8	OTHER (SPECIFY)

LENGTH OF USE	
1	< 1 YEAR
2	1-2 YEARS
3	3-5 YEARS
4	6-10 YEARS
5	11-20 YEARS
6	21-30 YEARS
7	> 31 YEARS
8	OTHER

VALUES	
1	BEAUTY
2	SOLITUDE
3	TRANQUILITY
4	RECREATION
5	HEALTH
6	CONTACT WITH NATURE
7	HABITAT RESTORATION
8	COMMUNITY IDENTITY
9	PUBLIC LIFE
10	TOURISM
11	OTHER

AGE	
1	18-24
2	25-30
3	31-40
4	41-50
5	51-60
6	61-70
7	70 +

EDUCATION	
1	Grade School
2	High School
3	College - 2yr
4	College - 4yr
5	Graduate School

CHANGES

	HABITAT RESTORATION
1	none
2	improved water quality
3	shoreline restored
4	native vegetation planted (prairie)
5	selective tree removal (hazardous/diseased)
6	fishing for wading birds restock
7	sized increased
8	new perimeter fence
9	woodland vegetation planted
10	non-native vegitation removed
11	dead tree/branches for bird/animal perches
12	wetland area restored
13	amphibians: turtles, frogs, reintroduced
14	vegetation planted to buffer parkland
15	vegetation planted in magic hedge
16	vegetation planted along the dunes
17	additional trees
18	other

	NEW PARK FEATURES
1	none
2	gravel and woodchip paths
3	seven stone overlooks around pond
4	accessible paths
5	viewing plaza
6	new benches
7	wrought iron fence
8	viewing platform
9	informational and educational signage
10	mowed paths along meadow edge
11	water feature
12	other

	HISTORIC RESTORATION
1	none
2	Caldwell vegetation planted
3	two pavilions rebuilt
4	Fullerton gate rebuilt
5	incompatible stone removed
6	other

	RESTORED PARK FEATURES
1	none
2	fishing access
3	vistas to lake
4	other

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