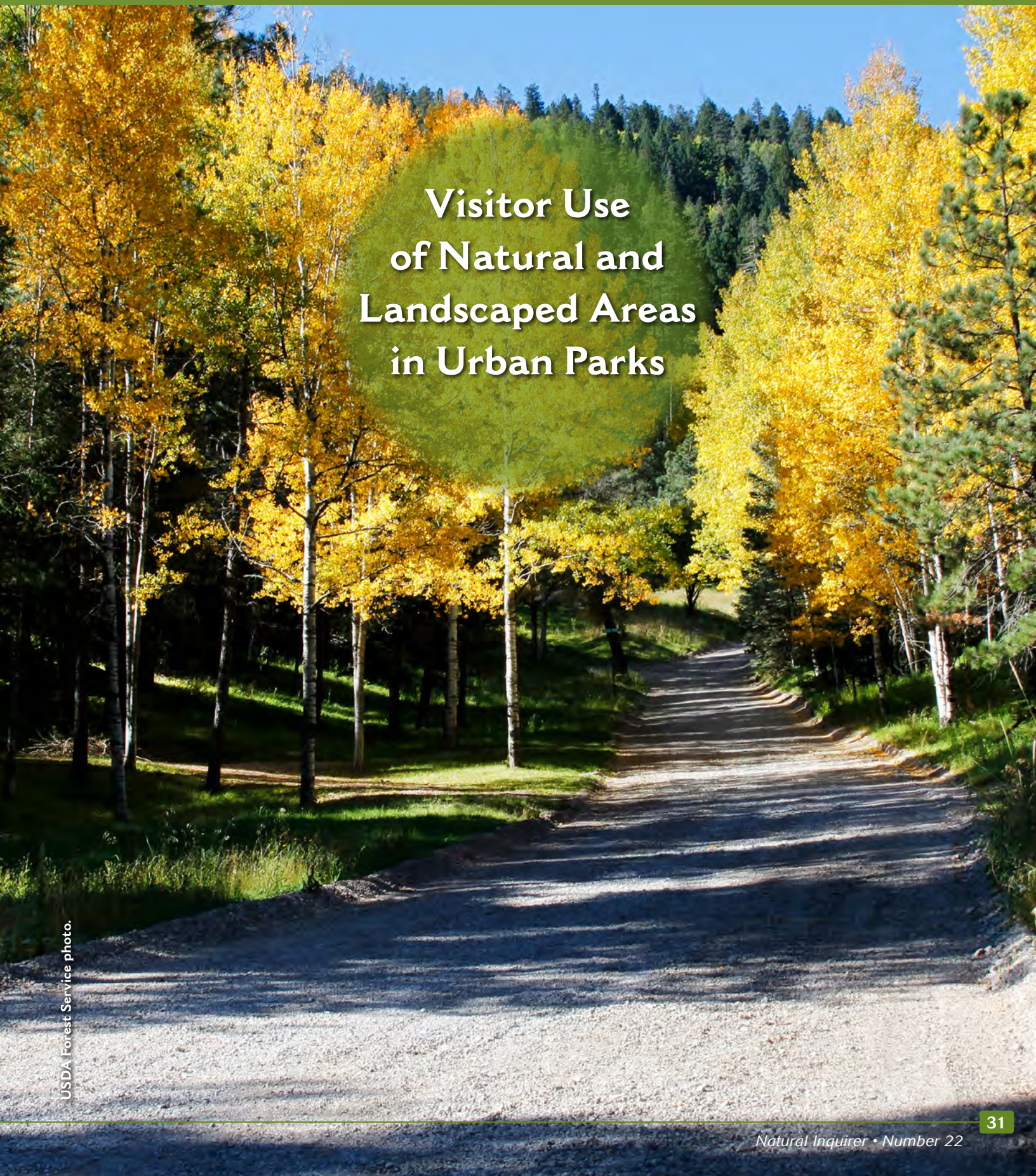
Where the Sidewalk Ends



Visitor Use of Natural and Landscaped Areas in Urban Parks

USDA Forest Service photo.

Meet the Scientists

Courtesy photo from Nancy Sonti.

▲ **Nancy Sonti,** Ecologist: My favorite science experience was learning about the history of **urban** forests and the growth of urban trees through tree rings and then getting to share that information with community members. I've learned that one Baltimore forest patch is 100 years old, and another has trees that are almost 300 years old. I also like to learn about how local residents feel when they interact with trees and forests near where they live.

Courtesy photo from Novem Auyeung.

▲ **Novem Auyeung,** Ecologist: My favorite science experience is working with natural resources managers, community members, and other researchers to use our combined knowledge to protect, manage, and restore natural areas in New York City.

Courtesy photo from Lindsay Campbell.

▲ **Lindsay Campbell,** Social Scientist: My favorite science experience is being in the field, interviewing and observing people. I love to learn more about the ways people connect to nature, create meaning, and build a sense of place and community.

Courtesy photo from Michelle Johnson.

▲ **Michelle Johnson,** Ecologist: My favorite science experience is sitting down with data in hand to explore what you have found. Does your data support your **hypothesis**, or is something else going on you didn't realize at the beginning of the project? It is like getting to where "x" marks the spot on an adventure map and seeing what is there.

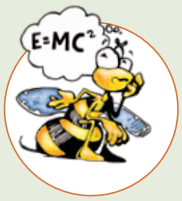
What Kind of Scientist Did This Research?

Ecologist: This scientist studies the relationship of living things with their living and nonliving environment.

Social Scientist: This scientist studies the values, opinions, beliefs, attitudes, and actions of individuals and groups of people.

Glossary words are bold and are defined on page 42.

Thinking About Science



The scientists in this study wanted to interview visitors to urban parks in New York City. They wanted to get a clear picture of all the park visitors and their different reasons for using or not using areas of the park. This desire meant that the scientists had to interview visitors in-person about visiting the park (**figure 1**). Walking up to strangers and asking them questions can be hard to do. What if a nervous interviewer only felt comfortable talking to parents with children or only to people carrying a basketball and heading for the basketball courts? Would their interviews let the scientists know what all park visitors thought? No, the scientists would only know what people with children or people who play basketball thought. This situation is called selection **bias**.

To find out what all visitors to a park thought about the park areas, scientists needed to **randomize** their interviews. In other words, every adult visitor to the park had to have an equal chance of being selected for an interview. To ensure this, scientists who conducted the interviews stopped every third adult park visitor they saw. Some of those visitors did not want to be interviewed, so the scientists recorded that information as well. Other visitors did answer the questions, and the scientists were able to interview all kinds of different visitors to the park.

Figure 1. A researcher interviews a fisherman at Broad Channel American Park, in Queens, New York City. Researchers in this study had to interview many different kinds of visitors to urban parks. USDA Forest Service and New York City Parks photo by the research team.

Number Crunch

- Scientists asked 1,286 people to participate in their study. Of those people, 331 chose not to be interviewed. What was the overall response rate (people who agreed to participate) for the interviews?

  Hint: This should be expressed as a percentage—the number of people who agreed to participate divided by the number of people asked to participate.

Thinking About the Environment

When you think of wilderness, what do you picture? You might picture a famous American park like Yellowstone or the Grand Canyon (**figure 2**), or you might see a forest with no roads, cars, or houses. Wilderness areas are areas designated to minimize human impacts. Some natural areas within urban parks—such as forests, **wetlands**, and meadows—remind people of wilderness areas. These areas, when compared with **landscaped** areas in urban parks—such as lawns and planted gardens—feel more wild than landscaped areas of a park, but they are also less remote than rural wilderness areas.

The scientists in this study were specifically interested in urban parks. The area in these parks was divided into two separate categories: natural areas and landscaped areas. The natural areas are the forests, wetlands, and grasslands in the parks (**figure 3**). These areas may have trails, but they are left mostly wild without buildings or planned landscaping. Landscaped areas are the areas of a park that have a lot of human interventions, like athletic fields, playgrounds, amphitheaters, or lawns (**figure 4**). These areas have buildings and other structures, like bathrooms or concession stands, and may have flower beds or planted shrubs or a neatly mown lawn.

Figure 2. (A) Yellowstone National Park covers 2.2 million acres across Idaho, Montana, and Wyoming. **(B)** Grand Canyon National Park is in Arizona and centers around the Grand Canyon, a huge canyon that is a mile deep and up to 18 miles wide. Figure 2A is a courtesy photo by Nissa McKinney. Figure 2B is a National Park Service photo by W. Tyson Joye.

Natural Areas

Figure 3. (A) A nature trail winds through a forest in Pelham Bay Park in the Bronx. **(B)** A tidal marsh is located at Pugsley Creek in the Bronx. **(C)** These grasslands are at Freshkills Park in Staten Island. The park is being built in phases on one of the largest landfills in the world. Figure 3A is a USDA Forest Service and New York City Parks photo. Figures 3B and 3C are New York City Parks photos.

Landscaped Areas

Figure 4. (A) A small city park contains both basketball courts (front) and a baseball field (back). **(B)** Benches surround a playground in Inwood Hill Park in Manhattan. **(C)** Some parks have carefully tended lawns, like this one in Canarsie Park, Brooklyn. Figure 4A is a FIND Outdoors photo by Nissa McKinney. Figures 4B and 4C are USDA Forest Service and New York City Parks photos by the research team.

Introduction

Most Americans now live in urban areas and may not have easy access to rural wilderness areas. Instead, many people in cities experience nature by visiting local parks. These parks can be large, with many landscaped spaces like athletic fields and playgrounds as well as more natural areas like forested nature trails. These parks can also be small spaces, like an area of trees with benches and a trail or maybe just a playground (**figure 5**).

Any kind of park can provide a connection to nature that has been shown to be beneficial to people. Experiencing nature can help people feel less stressed and more peaceful. Nature can provide inspiration or spark the imagination. Nature can also help people feel more connected to their environment and their community. For these reasons, many communities want to make their parklands more welcoming and inclusive for everyone in their community.

New York City is one of these communities. They set a goal of helping people feel more comfortable and safer in their parks. To meet their goal, park managers in New York City needed to learn more about their park visitors. Scientists and staff from the USDA Forest Service, the New York City Department of Parks and Recreation, and the Natural Areas Conservancy worked together to find out more about park visitors in their city.

The scientists in this study wanted to know three things:

(1) Do visitors' activities and reasons for using the park vary between landscaped and natural areas of New York City parks?

(2) Why do park visitors choose to visit or not visit urban natural areas?

(3) Are there differences between men and women in how they use landscaped and natural areas in parks and in their reasons for visiting these places?

Figure 5. This small park is known as a "pocket park." City residents turned an unused island of land between roads into a park by planting shrubs and flowers, installing seating and bike racks, and providing recreation opportunities like the chess boards. FIND Outdoors photos by Nissa McKinney.

Reflection Section

- Why are urban parks important for people who live in cities? Are urban parks important to you? Why or why not?
- What do scientists need to know about park visitors to help more people feel welcome in urban parks?

Methods

Scientists chose 21 parks in all 5 **boroughs** of New York City that had both landscaped and natural areas for visitors to use (**figure 6**). They trained groups of researchers to interview park visitors with open-ended questions, including:

- Why were they visiting the park?
- What do they like to do at the park?
- Do they visit natural areas?
- Why they do or do not visit natural areas?
- Are they involved in any environmental **stewardship** groups?

Open-ended questions require people to answer with more than a simple yes or no. These researchers walked around all areas of the parks, both landscaped and natural, on trails and desire lines (see sidebar on page 38). They interviewed every third visitor they met to randomize the selection of participants and reduce selection bias (see "Thinking About Science" on page 33).

Researchers interviewed 955 visitors from June to August 2014 during the weekday, weekday evening, and weekend. Then two researchers read each interview response and worked together to categorize the answers. The researchers were then able to create tables of the responses to each of their questions.

Figure 6. New York City (NYC) is divided into five boroughs: Manhattan, Queens, the Bronx, Brooklyn, and Staten Island. Map by Dr. Michelle Johnson.

Reflection Section

- The scientists in this study interviewed park visitors on weekdays, weekday evenings, and during the weekend. Why would scientists want to study park visitors at different times during the week?
- Why do you think scientists chose to ask open-ended questions in this study rather than questions that could be answered with just a yes or no?

What Are Desire Lines?

Desire lines, or desire paths, are routes that pedestrians use that have not been planned by landscape architects or developers. Instead, they are paths that have been made from the erosion caused by frequent foot traffic from pedestrians. These routes are usually the shortest or easiest way to reach one point from another.

USDA Forest Service and New York City Parks photos by the research team.

Land managers, landscape architects, and other designers may study desire lines to understand how people are using a space. The width of the desire line and how worn down it is can give managers and designers clues about how many people use the space and where they might be going. Sometimes designers will even leave a space with no paths so they can see where pedestrians will make desire lines. They can then pave the paths that receive the most traffic.

Desire lines can also have a negative effect on the landscape. Sometimes desire lines will cross into sensitive habitats or places that land managers don't want pedestrians to walk. These paths can trample vegetation, increase erosion, or threaten the habitats of plants and animals. Land managers must then find ways to block these desire lines from pedestrians. This need to protect the environment is one reason you should always stay on the marked trail when hiking, even if the trail is muddy, steep, or otherwise difficult.

Adobe Stock photo.

Findings

Visitors in landscaped areas reported using the park for different reasons than the visitors in natural areas. In general, landscaped areas were used more for activities with children, sports, and socializing. Natural areas were used more for walking and nature recreation.

Most people said that they visited the park because it was close and convenient to where they lived or worked. The next most important reason for visiting the park was to be close to nature and to enjoy the outdoors. This response was twice as likely to be mentioned by visitors to natural areas than by visitors to the landscaped areas of the park. People visiting natural areas were more likely to talk about finding **refuge** in nature, and they were also more likely to talk about how attached they were to the park. Often the park reminded them of home or they had visited the park often as children (**table 1**).

Table 1. This table shows the reasons visitors gave for visiting the park, separated by visitors to natural areas and visitors to landscaped areas.

Reason for visiting	Natural areas		Landscaped areas	
	Number of people	Percent of people	Number of people	Percent of people
Proximity/access	100	43.1%	332	45.9%
Nature/outdoors	51	22.0%	71	9.8%
Refuge	38	16.4%	94	13.0%
Enjoyment	36	15.5%	74	10.2%
Amenities	33	14.2%	106	14.7%
Place attachment	33	14.2%	71	9.8%
Park quality	20	8.6%	98	13.6%
Activity	18	7.8%	99	13.7%
Sociability	9	3.9%	65	9.0%
Other: No reason, first visit, etc.	15	6.5%	29	4.0%

Table 2. This table shows the reasons people gave for not visiting natural areas of urban parks. The results are divided by gender, and visitors could give more than one reason for not visiting natural areas.

Reasons for not visiting natural areas	Women		Men		Total	
	Number of people	Percent of people	Number of people	Percent of people	Number of people	Percent of people
Preference: Visitors who prefer landscaped areas	88	48.4%	121	58.7%	209	53.9%
Potential: Visitors who can or say they would visit natural areas but don't know they exist or haven't thought about visiting them	63	34.6%	79	38.3%	142	36.6%
Barriers: Visitors who mentioned a specific barrier to visiting natural areas (see **table 3**)	78	42.9%	49	23.7%	127	32.7%
No answer	5	2.7%	11	5.3%	16	4.1%

Table 3. Scientists broke down the responses of the people who did not visit natural areas because of a specific barrier into each specific barrier mentioned: fear, access, or kids. The results are divided by gender, and visitors could give more than one reason for not visiting natural areas. The percentages are based on the number of visitors who do not visit natural areas.

Specific Barrier	Women		Men		Total	
	Number of people	Percent of people	Number of people	Percent of people	Number of people	Percent of people
Fear or concern	54	29.7%	32	15.5%	86	22.2%
Access	12	6.6%	11	5.3%	23	5.9%
Kids	12	6.6%	6	2.9%	18	4.6%
Total visitors who mentioned a specific barrier to visiting natural areas	**78**	**42.9%**	**49**	**23.7%**	**127**	**32.7%**

Forty-one percent of visitors said they do not visit the natural areas of the park (**table 2**, page 39). Some people said they prefer landscaped areas of the park because those areas have the **amenities** they use, like playgrounds, bathrooms, or ball fields. Some reported avoiding natural areas because they didn't feel safe (**table 3**). They worried about being hurt by people, animals, or insects in natural areas. Others worried about getting lost on trails.

More women than men reported visiting the park with children. Because women are often at the park with children, scientists found that women preferred places with amenities like playgrounds. Women were less likely to visit natural areas than men, and 30 percent of women said they were afraid of going into natural areas. Because of this, children are more likely to be in landscaped areas rather than natural areas.

Finally, a roughly equal number of men and women who were interviewed said that they participated in environmental stewardship groups. These groups may do things like organize clean-up activities in parks or along waterways, teach people how to compost or conserve water, or work with community leaders to pass laws protecting the environment (**figure 7**). Visitors who were members of these kinds of groups were more likely to visit natural areas than people who were not part of environmental stewardship groups.

Figure 7. Woodsy Owl participates in a variety of environmental stewardship activities, like **(A)** collecting tree data for scientists, **(B)** growing a community garden, and **(C)** cleaning up trash at a local waterway. Photos by Cecilio Ricardo.

Reflection Section

- What kinds of park amenities might be useful to visitors who bring children to the park?
- What kinds of activities could you enjoy in natural areas of a park that might be different from activities you enjoy in landscaped areas?

Discussion

According to the park visitors who were interviewed, both landscaped and natural areas of these parks provided a sense of refuge from the city, enjoyment, and a connection to a familiar place. Both kinds of areas were also most frequently visited because of how close they were to where visitors lived or worked. The landscaped areas provided more social activities, but the natural areas attracted more people who enjoyed the **seclusion**, peacefulness, and opportunities to view wildlife.

Park visitors who were reluctant to visit natural areas had some specific concerns. Some worried about access to natural areas because these places were sometimes hard to reach, like up steep hills or across busy roads. Some visitors worried about safety, both from other people and wildlife. Others felt that natural areas were not good places to bring children because of safety concerns or because children would be harder to watch in natural areas than on a playground. Finally, some park visitors who had always lived in cities and hadn't visited the park much as children preferred the more landscaped areas and avoided natural spaces.

People who were members of environmental stewardship groups were more likely to visit the natural areas of the park and feel comfortable there. Encouraging visitors to become involved in stewardship activities that help protect and conserve natural areas at urban parks may encourage more people to use these areas and feel comfortable in them.

Urban park managers want more visitors, including children, to feel safe and welcome in their parks in both the landscaped and natural areas. This desire is because most urban parks are public lands. Public lands are paid for by taxes and are operated on behalf of all residents. Therefore, urban park managers want to provide the kind of recreational opportunities residents want to have.

Reflection Section

- What did visitors enjoy about the parks they visited?
- What prevents some people from visiting natural areas in parks?
- What are some ways that park managers can make their parks feel safer and more welcoming to all visitors?

Adapted from Sonti, N.F.; Campbell, L.K.; Svendsen, E.S.; Johnson, M.L.; Auyeung, D.S.N. 2020. Fear and fascination: Use and perceptions of New York City's forests, wetlands, and landscaped park areas. Urban Forestry & Urban Greening. 49: 126601. 10 p. https://doi.org/10.1016/j.ufug.2020.126601.

What's in a Name?

The title of this article, "Where the Sidewalk Ends," is taken from a book of collected poems by Shel Silverstein. In the book, a poem also called "Where the Sidewalk Ends" talks of a place "where the sidewalk ends / And before the street begins." This place is a place of imagination, creativity, and wonder, much like the natural areas of city parks. Places beyond the sidewalk can be places of discovery and wonder.