



Ambivalence in the Woods: Baltimore Resident Perceptions of Local Forest Patches

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ABSTRACT

Wild urban forests may elicit positive and negative emotions, both at a community level and within an individual. This paper examines resident perceptions and use of local forest patches in Baltimore, Maryland across four case study neighborhoods selected for differences in homeownership and forest patch management. Semi-structured interview data reveal residents' strongly ambivalent attitudes toward urban wilderness across all study sites with only nuanced differences in perceptions based on homeownership and management regime. Baltimore residents living adjacent to forest patches were found to experience some of the restorative benefits associated with immersion in wild nature, even when they do not actually enter the woods. Positive experiences were balanced by negative emotions resulting from the perception that urban wilderness is chaotic and unpredictable. These ambivalent feelings may influence the benefits derived from these urban green spaces, as well as local residents' desires for their future structure and function as social-ecological spaces.

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Introduction

For many urban residents, the experience of “wilderness” is more likely to come from a local patch of woods than from an excursion to a national park, and the social benefits of visiting these wild urban forest patches are increasingly recognized by major cities throughout the United States. Municipal governments and organizations such as Trees for Seattle and New York City's Natural Areas Conservancy strive to increase urban residents' awareness of and access to natural areas in order to improve health and well-being (City of Seattle 2013; Natural Areas Conservancy 2016). However, the characterization of these urban green spaces as “forests” or as sites of social-ecological value is not straightforward for scientists or local community members (Kowarik 2005; Ogden et al. 2019). There is evidence that urban wilderness elicits both positive and negative emotions, both at a community level and within an individual (Skår 2010; Auyeung et al. 2016). These ambivalent feelings may influence the types of benefits derived from

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these urban green spaces, as well as local residents' desires for their future structure and function as social-ecological spaces (Nassauer 1995; Jorgensen, Hitchmough, and Dunnett 2007).

Local resident engagement with urban forest patches may lead to positive social and ecological outcomes, as communities experience benefits conferred by these sites of urban nature and advocate for their protection and sustainable management. However, there is still a gap in understanding the ways in which local residents perceive and experience urban forest patches, which are distinct from other types of urban green space and from the remote wilderness. Furthermore, there may be variations in resident perception across different neighborhood contexts. Because of their potential to provide unique benefits to community residents, this study seeks to understand the ambivalence provoked by "wild" urban forests using a multiple-case study approach in Baltimore, Maryland.

Literature Review

Ambivalence toward natural landscapes is characterized as simultaneous and contradictory perceptions that evoke a mixture of positive and negative feelings and thoughts (Jorgensen and Tylecote 2007; Bonnes, Passafaro, and Carrus 2011; van den Berg and Konijnendijk 2012). Empirical evidence suggests that ambivalence toward wild nature does not stem from a lack of knowledge and experience with wilderness landscapes, but rather from fundamental human motivations and existential anxiety about one's own vulnerability (van den Berg and Ter Heijne 2005). Ambivalent feelings toward wilderness have been shown to arise from the lack of human control in these spaces, which can lead people to experience both inspiration and terror when confronted with wild nature (van den Berg and Konijnendijk 2012). For example, Koole and Van den Berg (2005) find that wild nature is more likely to evoke thoughts about both death and freedom than either managed nature or a city environment.

Urban wild spaces, including forest patches, may evoke similarly strong positive and negative feelings in those who encounter them (Skår 2010). Jorgensen and Tylecote (2007) suggest that urban woodlands provide contemporary "interstitial" wilderness experiences, existing as a distinct type of representational space where "natural rather than human agencies are in control of shaping the land" (453). Despite the obvious lack of human management in comparison to the surrounding streetscape, urban woodlands arise in the midst of densely crowded cities and therefore may not conform to well-known esthetic ideals of nature as either cultivated gardens or remote wilderness (Jorgensen and Tylecote 2007). In fact, the local community may interpret a lack of intentional human management as a sign of neglect (Nassauer 1995), particularly in cities like Baltimore, where a large amount of green space on vacant land has resulted from decades of economic disinvestment and depopulation (Emmanuel 1997).

Despite their potential to provoke deep ambivalence, urban natural areas are considered to provide unique esthetic and restorative benefits compared to other more intensively managed urban green spaces (Korpela et al. 2010; Tyrväinen et al. 2014; Threlfall and Kendal 2018). Forested areas inside public parks can provide opportunities for engagement with nature, as well as opportunities for reflection (Feldman 2007; Auyeung

et al. 2016). These sites of wild nature allow urban residents the educational and inspirational experiences of ecosystem processes such as phenology of leaf burst, flowering, color changes, and migratory bird sightings (Konijnendijk 2005). Outside of formal parkland, urban “wildscape” fragments or “informal green space” provide space for active recreational activities, as well as passive “lingering” (Keil 2005; Rupprecht and Byrne 2014). The opportunity for reflection experienced while in wild urban nature may lead to the development of environmental identity: “a sense of connection to some part of the nonhuman natural environment that affects the way we perceive and act toward the world; a belief that the environment is important to us and an important part of who we are” (Clayton and Opatow 2003, 45–46). Urban forest patches may also foster place identity and/or place attachment, concepts that refer to components of identity associated with feelings about a particular place and the emotional ties to place (Ryan 2005; Clayton and Myers 2015). Attachment to one’s neighborhood is associated with positive individual and community outcomes such as higher levels of civic engagement and collective efficacy (Brown, Perkins, and Brown 2003; Manzo and Perkins 2006), and perceptions of community green space have been linked to higher neighborhood satisfaction and place attachment (Hur, Nasar, and Chun 2010; Arnberger and Eder 2012).

The esthetic qualities of urban natural areas can also influence the social and psychological benefits to visitors. Urban forests can have a high social value, given that they are easily accessible, are large enough to provide an escape from urban life, and have an open vegetation structure that is perceived as both “natural” and “tended” (Martens, Gutscher, and Bauer 2011; Jansson et al. 2013; Carrus et al. 2013). Urban forest visitation and perceptions of safety may also be improved by specific management interventions such as removal of trash and signs of vandalism, improved signage and trails, and increased community engagement (Thompson, Roe, and Aspinall 2013).

Most research on the social meaning of urban woodlands has focused on park visitors. However, there is a need to understand the perceptions of nearby residents who observe these wild spaces every day. Similarly, it is important to include forest patches outside of protected parkland, as these may be the most accessible sites of wild nature for many urban residents (Rupprecht, Byrne, and Lo 2016; Kowarik 2018). Empirical research suggests that woodland ownership can influence visitation patterns and perceptions of accessibility (Morris et al. 2011). Similar to park visitors, residents who live near urban forest patches may develop ambivalent feelings toward them. For example, urban residents can simultaneously identify local woodland spaces as their favorite places but also feel unsafe when they are alone in them (Jorgensen, Hitchmough, and Dunnett 2007). As municipal agencies and community organizations work to expand access to and use of all types of urban natural areas, it is critical to understand whether they are currently used or appreciated by those who live nearby.

The neighborhood context may also affect the perceptions and use of wild urban green spaces. Residents from different neighborhoods in Christchurch, New Zealand were found to have different perceptions of urban natural areas: “Those in areas with greater security risks had more reservations about adding a biophysical ‘wilderness’ to a place already seen as a ‘social wilderness’” (Kilvington and Allen 2005, 33). Therefore, the restorative benefits provided by urban forest patches may vary according to local

community characteristics. Research from the fields of environmental psychology and sociology suggests that homeownership may impact resident perceptions of urban forest patches and the benefits they derive from these spaces. Renters are generally perceived to be more transient and may invest less time in exploring their local environment than longtime homeowners (Rollwagen 2015). Homeowners and long-term residents are also found to have greater place attachment than renters and short-term residents (Brown, Perkins, and Brown 2003; Von Wirth et al. 2016).

Building on research about the restorative benefits of urban natural areas and about ambivalence toward the wilderness, this paper examines positive and negative perceptions of urban forest patches in Baltimore, Maryland. Like many cities in the eastern United States, Baltimore contains a mosaic of forest patches across social and political contexts, which may lead to material differences in land management and community perceptions of these spaces. Using interview data from multiple-case study sites, this paper addresses the questions: How do Baltimore residents use and perceive local urban forest patches? Does resident use and perception vary by homeownership or forest patch management regime?

Materials and Methods

Study Setting: Baltimore's Forest Patches

Baltimore, Maryland is a post-industrial city that has suffered from depopulation and economic disinvestment, leading to a large number of vacant properties (Boone et al. 2009). Within Baltimore, thirty-four percent of the tree canopy cover is made up of forest patches, defined as areas of tree canopy greater than 10,000 ft² (Avins 2013). More than half of this forested area exists outside of municipal park boundaries (Avins 2013), creating a varied mosaic of neighborhood characteristics, ownership, and management regimes. Baltimore's forest patches are found on a variety of public and private land uses including municipal parkland and institutional grounds such as universities or churches (Ogden et al. 2019). These forests may be managed as public green space or may not receive any management at all, depending on ownership, institutional budgets and goals, the location of the forest patch, or its visibility within the community. In addition, many Baltimore forest patches exist on undeveloped parcels of land that appear vacant or unused, without clear ownership or a formal management regime. Some of these patches are cared for by local volunteers working individually or as part of community organizations (Avins 2013; Ralston 2017).

Selection of Case Study Sites

This research was designed as a multiple-case study, with four forest patches selected as the case study sites (Yin 2012). All four forest patches lie in middle-income residential neighborhoods of similar housing density that are outside of the inner urban core of Baltimore City. Baltimore's median household income from 2010–2014 is \$41,819, and the census blocks surrounding the four patches included in this study range in income from \$34,000 to \$58,000 (United States Census Bureau 2013). Although these forest patches lack formal or paved trails to their interior, they also lack fences or any other

type of barrier to entry. As a result, all four sites are easily approachable from the public right of way and are easily visible by the residents that live across the street from them. However, each forest patch consists of at least four acres of tree canopy, which is large enough that it is possible to walk inside them and feel a sense of enclosure and separation from the urban streetscape.

After meeting the common criteria of location, accessibility, size, and neighborhood income described above, forest patch sites were selected to contrast the independent variables of management regimes and homeownership of adjacent residents ([Supplemental Table 1](#)). Two forest patches (Glen Oaks-Chinquapin Run and Perring Loch-Chinquapin Run) are owned by the City of Baltimore and managed by the Baltimore City Department of Recreation & Parks (BCRP), while the other two forest patches (HEPP Park and Springfield Woods) lie outside of city parkland and are managed by the local community. Each management regime was then varied by homeownership rates of the adjacent residential blocks. Glen Oaks-Chinquapin Run and Springfield Woods are adjacent to apartment buildings occupied by renters, while Perring Loch-Chinquapin Run and HEPP Park are adjacent to blocks of single-family homes occupied by homeowners. This sampling design allowed for an investigation of variation in perceptions and use of forest patches according to differences in homeownership and forest patch management.

The local nonprofit organization Baltimore Green Space has been supporting community-led stewardship activities at HEPP Park and Springfield Woods for several years. “HEPP Park” is not actually a city park, but a patch of forest that was acquired by the city for building a school in 1951 and remains undeveloped. Springfield Woods is comprised of 23 undeveloped lots owned by the Alameda Development Limited Partnership since 1986. Both of these sites have informal signs that designate them as community forests and have had nature walks and environmental stewardship events organized by the community in recent years. These community-stewarded sites are isolated forest patches surrounded by residential development. The other two sites are forest patches in Chinquapin Run Park, which is a 76-acre stream corridor buffered by varying widths of forest patch and fragmented by several major streets. While these forest patches are similar in size to the patches located on vacant land, they are connected to larger networks of urban green space through the Chinquapin Run Park corridor. Historical aerial imagery shows that these sites consisted of only a few trees lining Chinquapin Run in 1926 when the land was included as a “proposed park extension” in the Olmsted Brothers plan for Baltimore City (Baltimore Department of Public Works 1926; Lagrosa et al. 2017). Although the forest patches have grown since then, the city has not created any formal trails or nature programming at these sites and there appears to be little human management or intervention into natural succession.

Data Collection and Analysis

In the spring of 2017, semi-structured interviews with Baltimore residents were solicited via door-to-door canvassing by the author and a research assistant. As a result, interviews targeted a cross-section of community members who live near forest patches, including those who may not be actively engaged with or may have negative feelings about the

forest. Interviews took place during weekday mornings, afternoons, and early evenings. Contact was attempted up to three times at every door on the blocks adjacent to the forest patches unless there were clear signs of vacancy. The researchers explained that the purpose of the study was to understand how residents feel about the forest across the street and asked whether the individual was willing to participate. If the resident agreed, the interview began. All respondents agreed to audio recordings of the interview using a digital recorder. Interviews lasted 15–45 min. Informed consent was obtained verbally, and data were collected in accordance with University of Maryland IRB protocol (Project 924948-1), preserving anonymity of respondents. Interview data reported here are interpreted as examples of attitudes that exist within the case study sites rather than proportionally representing perceptions of the broader population.

A semi-structured interview is a qualitative research tool that combines a set of open-ended interview questions with the opportunity for the interviewer to use probes or prompts to explore particular themes or responses further (Warren and Karner 2010). In the interviews, residents were asked questions about: (1) their perceptions and interactions with local urban nature in general, including any environmental stewardship activities; (2) their perceptions and interactions with the forest patch specifically, including their awareness of any management activities; (3) demographic information, including age, ethnicity, employment status, level of education completed, and homeownership (see Supplemental Material for interview protocol). After each interview and at the end of the day, the author made additional field notes and debriefed with the research assistant by discussing patterns in the main themes of the interviews, noting similarities or differences between respondents, and new ideas learned with respect to residents' perceptions of forest patches. These field notes and debriefs provided additional, qualitative context and insights that informed the analysis of the patterns observed in the interview data.

Audio recordings of the interviews were transcribed. Interview transcripts were coded and analyzed using the qualitative data analysis software package NVivo 11 (QSR International, Melbourne, Australia). A combination of deductive and inductive coding strategies was applied to the data (Lofland et al. 2006). First, the text was coded for deductive themes of interest to this research, including positive and negative perceptions of the adjacent forest patch, as well as motivations for residents to enter the space or to keep their distance. In addition, emergent inductive themes relating to residents' ambivalence toward the forest patch were identified and coded based on content analysis of the interview text. These cross-cutting themes are described in the Results below. To further ensure validity of the data, preliminary findings were discussed with peers active in the field of urban forest stewardship (Warren and Karner 2010). In addition, the cultural context of Baltimore's urban forest patches was previously well-known to the author, which helps to minimize misinterpretation of meaning introduced by self or the interviewees (Baxter and Eyles 1997).

Results

Forty-two interviews were conducted across the four sites and the overall response rate was 45% (percentage of homes contacted where a resident agreed to be interviewed),

with a 10% refusal rate (those who answered the door but declined the interview). Homes and apartments that were clearly vacant were not approached and are not included in the response rate. Respondents ranged in age from 20 to 77-years-old with the average age being 50. The average age in the homeowner neighborhoods was 59, while the average age in the rental neighborhoods was 41. [Supplemental Table 2](#) contains additional demographic information about the interviewees.

Homeowners had lived in their current location for longer than renters; on average homeowner, respondents had lived in their house for 12.7 years, while renters had lived in their apartment for 1.2 years. None of the respondents in the rental neighborhoods had lived in their homes for more than 10 years, and only 21% had lived there more than two years. In the homeowner neighborhoods, 76% had lived there longer than 10 years and only one respondent had lived in the home for less than 2 years (the individual's family had owned the house for decades, but she had recently moved in). This pattern suggests that the respondents in the homeowner neighborhoods had lived in their home long enough to establish roots in the community, while the majority of the renters were still relative newcomers (Bolan 1997).

The majority of respondents said that they never go into the woods (62%), and this response was more pronounced in rental neighborhoods (76%) than in homeowner neighborhoods (48%). Of those who did interact with their forest patch, more than half reported very minimal contact with space, including walking along the edge or just having visited once. Only six respondents (14%) reported regularly going into the forest patch now or in the past, and these included residents from all four case study sites.

Thirty-one percent of respondents said that the presence of the forest patch affected their decision to live in that location, and these individuals were largely motivated by the esthetic qualities of the forest patch. However, there was no difference in responses between renters and homeowners. In addition, residents who chose to live next to the woods were not more likely to regularly visit than those who did not choose their home based on the presence of the forest. In fact, there were many respondents who had never gone inside the forest patch but did seek out their home because of its proximity to the green space.

Strong evidence for resident ambivalence toward urban forest patches was found throughout the four case study neighborhoods, both at the community level and within individual respondents. The four themes discussed below illustrate different aspects of these ambivalent attitudes held by local residents across all four sites: perceptions of wildlife, personal identity, forest patch esthetics, and social function. Contrary to expectations, there were limited differences in the emphasis of each theme by homeownership and forest patch management regime.

Perceptions of Wildlife

A majority of residents at all four sites talked about their perceptions of wildlife in and around the neighborhood forest patch, and it was the most prevalent theme discussed in the interviews. Individual residents expressed positive, neutral, or ambivalent feelings toward the wildlife associated with the forest patches, but were never completely negative. When residents expressed fear of animals, it was almost always mixed with awe

and fascination. It is clear that many residents derive inspirational, restorative, recreational, and educational benefits from the presence of wildlife.

Deer were the most commonly discussed animals throughout the interviews, and elicited very strong emotions from respondents. One woman homeowner living next to the Perring Loch-Chinquapin Run forest patch talked about the deer as if they were members of the community, remarking that “especially around fall when I’m coming home at night, sometimes they have a reunion, they have the deer reunion, there’s so many of them.” Another woman from the same block said, “We take pictures when we see a lot of deer. And then I allow my little babies to come out and see and say ‘Oh look at the deer.’” Although these large, charismatic animals elicited feelings of joy for many residents, these respondents did not include any of those who reported going into the woods. Rather, these residents loved the experience of watching deer from their porch and felt a strong emotional connection to the forest patch while keeping a safe distance.

Besides deer, respondents mentioned seeing or hearing birds, fish, raccoons, possums, squirrels, foxes, rabbits, and tadpoles. Fishing, catching tadpoles, and chasing foxes were described as beneficial activities for children who use the woods recreationally, either with their parents or on their own. The sight of foxes, possums, and raccoons seemed to surprise many residents who thought that these wild animals would not live within Baltimore City. Respondents often anthropomorphized these animals, describing them as if they were neighborhood characters. One woman renter living near Springfield Woods said she loves watching the wildlife and doesn’t mind “seeing Miss Foxy walk up and down the sidewalk.” A mother and daughter had a vivid recollection of an encounter with a possum from the Perring Loch-Chinquapin Run forest patch who “was going down the steps holding a cucumber” from their backyard garden and had “nerve, like a person going down the steps.” As with viewing deer, observing other forest patch wildlife can provide emotional, spiritual, and creative inspiration for city residents. Several respondents talked about taking pictures of the wildlife, including a vulture on a light post by Springfield Woods who “was up there like he was posing.” Watching or listening to birds or deer was described as “relaxing” and something that makes a person “feel good.” Although not exactly considered “wildlife,” some residents at Springfield Woods expressed a fondness for seeing the feral cats that are fed by local residents. One woman remarked, “I’ve seen this one black cat every time... it comes over here sometimes but it always goes back to the forest. I think it’s superstition with black cats, I guess that’s its magical ground.” The urban wildlife supported by forest patches can provide inspiration and even spiritual fulfillment for Baltimore’s residents.

In contrast, some respondents conveyed feelings of fear or concern about deer, bugs, snakes, raccoons, and foxes. A few residents expressed the belief that the animals were unnaturally comfortable around humans. One young man renting an apartment near the Glen Oaks-Chinquapin Run forest patch was unnerved by the fact that both deer and raccoons were “too close for real... they’re not scared of humans.” Others were more afraid of the unknown creatures that might be hiding in the forest patch. A woman living near Glen Oaks-Chinquapin Run explained: “I am a little nervous about what’s going to hop out at me,” clarifying that she was more afraid of unknown animals than people who might be lurking in the forest.

Some individual residents expressed mixed feelings about different kinds of forest patch wildlife. For example, a woman homeowner who was fond of the deer in the Perring Loch-Chinquapin Run forest was afraid that other wildlife might harm her: “Basically I’m afraid. Because I’ve never been there before. Usually I’m by myself so there’s no one to go in there with. Might be snakes over there, who knows. It’s the deer I know, but I don’t know what else is there.” This fear of the unknown prevented many residents from getting too close to the forest patch. Other residents were similarly comfortable with only some elements of forest patch wildlife. One woman fondly listed all the animals she has seen from her home at the Perring Loch-Chinquapin Run forest patch, but then explains that she never goes in the woods because she is “allergic to trees and grass and [doesn’t] like the bugs and insects.” The ubiquitous front stoop in this neighborhood allows residents to observe charismatic wildlife from a distance without coming into contact with undesirable parts of the forest ecosystem.

Overall, perceptions of wildlife were discussed more often by residents living adjacent to city parkland, likely because the physical characteristics of these forest patches influence the amount and type of wildlife that residents are likely to see compared to those on vacant land. Both BCRP-managed Chinquapin Run forest patches are part of larger riparian corridors (although not entirely forested) and are inhabited by deer that move along the corridor. While the two forest patches on vacant land do not contain a smaller area of tree canopy, they are not directly connected to a larger network of green space, and so they do not appear to support deer populations.

Forest Patch Esthetics

Esthetic values of the neighborhood forest patches were another important theme, particularly among homeowners. One man found inspiration in the beauty of Springfield Woods, saying “I don’t want to change it or rearrange it... ’cause it’s a beautiful thing as it is, you know?” These and other accounts reveal strong feelings of place attachment related to the visual qualities of the forest patches. One woman homeowner feels a sense of ownership looking across at HEPP Park, saying “I just call it my greenery.” Another woman who intentionally chose her rental apartment for the view of Glen Oaks-Chinquapin Run forest patch enjoys watching the birds and squirrels from her window and says she “can just look up and see green right away.” The woods provide an important esthetic backdrop to these residents’ daily lives, providing comfort, beauty, and inspiration.

Residents often reported a strong attachment to the esthetics of local forest patches while still having no desire to physically interact with the space. A woman homeowner who explains that she has no reason to visit or explore the Perring Loch-Chinquapin Run forest patch is still very much attached to its beauty, stating: “I enjoy the peacefulness of having that nice, wooded area over there. And when it snows, it’s nice. It’s very picturesque when it snows.” Another woman from the same neighborhood who doesn’t go into the woods because she is afraid of the animals that might be in there still enjoys sitting out on her porch in the evening “just watching the leaves go, the wind go through the leaves and stuff, it’s really nice.” The esthetic qualities of the woods provide restorative benefits, even from a distance.

Individuals who chose to live in their home or apartment because of its proximity to the woods were largely motivated by the esthetic qualities of the forest patch. A man living near HEPP Park explained his motivation for buying a home across from the forest patch: "I grew up in a Baltimore rowhouse, so this was like moving to the country." Similarly, a woman explained that she bought her house across from HEPP Park because the setting was "picturesque." Other respondents appreciated their view of the forest patch because of the privacy provided by the lack of neighbors across the street. One woman renter near the Glen Oaks-Chinquapin Run forest explained, "That's one reason that I chose this apartment because I wanted to be able to see out and not see out into somebody's brick wall or their bathroom." The sense of enclosure and seclusion provided by urban wilderness is an esthetic benefit that helps mitigate the crowded, public nature of urban life.

Despite the esthetic benefits derived by many residents, a majority of respondents were dissatisfied with some aspect of the physical characteristics of their local forest patch vegetation. In particular, homeowners were more likely than renters to have concerns about the appearance or structure of forest patch vegetation. Often, the same residents who valued the beauty of the forest patch also had concerns with specific physical features of the woods and offered suggestions about how they could be improved, possibly because they spent so much time observing and appreciating the appearance of the forest.

Although many residents had concerns about trash being dumped in the woods, and even more prevalent esthetic concern was that the forest patch vegetation itself needed some "clearing out." One woman near Glen Oaks-Chinquapin Run felt that "some of the trees look a little scary... some of it looks weird... I'm talking about cutting the branches and making it look a little more presentable." Dead and decomposing wood is important for forest ecosystem function, providing habitat and nutrients to many organisms. However, some residents perceived this natural cycle of death and decay as signs of neglect. One man observed of HEPP Park: "Those dead trees just falling apart there, nobody cares about it, nobody's cleaning it." Aside from detracting from the forest's esthetic qualities, other residents had safety concerns about the "clutter" they perceived in the forest understory. Two men felt that HEPP Park vegetation used to be in better condition, but that the overgrown understory prevented anyone from entering the forest anymore. Respondents at both Chinquapin Run forest patches felt that additional "landscaping" would create more visibility, reducing the potential for crime and making parents feel more comfortable allowing their children to play in the woods. One woman renter in Glen Oaks remarked, "Kids can fall down in the back and nobody will know, because of the way the bushes is right there." Another felt that if tree branches were removed, the forest patch would be "a little brighter for at least a parent or just anybody else to just see, that might be more appealing." Though many residents see beauty in a patch of wild urban nature, some residents feel that more human intervention would improve the esthetics of the forest patch and its associated value to the community.

Respondents were often able to identify ecological problems that led to changes to forest patch esthetics, even if they did not use the scientific language to articulate their concerns. For example, residents from three different sites noticed that invasive vines

were overtaking some of the canopy trees in their forest patch. They explained that the trees were dying as a result of the vines “strangling,” “choking,” or “sucking the life” out of the trees. A woman who is a long-time homeowner near the Perring Loch-Chinquapin Run forest remarked that “It’s been a lot of change since I’ve been here because there was more trees over there, and they were more beautiful ... it was much thicker.” These women are likely noticing regeneration failure in the forest patches, caused by a combination of invasive plants and deer browse. As mature trees die, they are not being replaced with a new generation of native trees, leading to a forest patch with a less dense canopy that is dominated by invasive vines, shrubs, and herbaceous plants.

Personal Identity

Many residents spoke about their identity when asked how they feel about the forest patch or whether or not they ever visit the space. The few residents who do venture into the woods had a particularly strong sense of identity related to their perceptions and use of the local forest patch. These respondents made statements like “I’m an outdoorsman,” “I am connected to the earth,” or “it’s something that I gravitate towards.” For these individuals, their connection to the forest patch is a manifestation of their environmental identity. Sometimes this place attachment relates to important landscapes from their past. A man from rural Maryland living across from Springfield Woods recounts his childhood: “I’m from the woods, coming up, I used to play in the woods ... it’s like second nature to me ... I used to cut through the woods to go to school. I got my first kiss from a girl in the woods. We’d bring some food and hang out in the woods all day! That’s how I was brought up.” Another resident appreciates that the Perring Loch-Chinquapin Run forest patch gives her access to “just a little bit of nature in the city because you don’t get that much because everything is so urban now. So that’s my thing. I love like woods and camping and stuff like that.” She appreciates living across from the woods because they connect her to previous outdoor experiences and pastimes that are part of her identity.

Residents who do not enter the woods but enjoy it from a distance may still feel that the forest patch brings joy to their lives and helps them connect to their sense of self. A woman who likes to sit in the shade at the edge of Springfield Woods describes herself by saying “I’ve been a woods person for a lot of years.” Another woman who likes to sit at the edge of Glen Oaks-Chinquapin Run explains, “I’m a nature lover, I’m from the Caribbean so we always go hiking and stuff. It reminds me of home, having the trees.” Another woman feels that her family was “blessed” to be able to own a home across the street from Perring Loch-Chinquapin Run, where nature provides a background that improves their lives.

Residents with no interest in experiencing the forest patch also invoked identity when explaining their distaste for nature. One woman homeowner says of HEPP Park: “I never been over there, I know nothing about those woods ... I have no reason to go up in there, no need.” Other respondents reveal that they don’t enjoy interacting with nature in general, or don’t view it as part of their identity. These residents say: “it’s not my thing” or “I’m not a woody person.” Several longtime residents describe their kids

going into the forest patch even though they would not enter themselves; or perhaps they did visit the woods as a child but have not been in decades because they're "not a kid anymore." However, these respondents were much fewer in number than those who described a positive association between their identity and the forest patch.

Renters and homeowners were equally likely to talk about their identity being positively related to the local forest patch. This suggests that neither long-term investment in the local community nor observing the woods for many years will necessarily influence a homeowner to identify with these wild urban green spaces. Conversely, renters who may be more transient and do not necessarily have the same long-term investment in their surroundings are still able to form a deep connection to their local forest patch. The few residents who spoke about their identity when explaining their aversion to the forest patch were also comprised of renters and homeowners, suggesting that it is an innate social value that was brought to their current living situation.

Social Function

A final theme that emerged from the interviews was ambivalence around the social function of the forest patch. Residents had conflicting perspectives about the purpose of these green spaces and their use by the community. As they currently exist, the woods are quiet spaces that provide a unique opportunity for reflection and escape from the Baltimore City streetscape. The lack of intentional human design and structure allows children the opportunity for "free play" and lets visitors of all ages interact with wild nature. However, there is also a pervasive feeling that the woods could be improved upon, and that additional development could help create more active sites of social recreation.

A common theme described by residents was the sense of refuge provided by their local forest patch, whether for a private social interaction or for solitary reflection. One woman renter near the Glen Oaks-Chinquapin Run forest patch observes, "there's often a young couple sitting there and talking. You know that's a good private place for talking... the woods don't tell." Similarly, a woman homeowner near Perring Loch-Chinquapin Run woods explains "It's nice because there's nothing on the other side but the woods. And you can sit here, and you can relax, just watch and listen, and talk." Others, such as this woman renter near Glen Oaks-Chinquapin Run, prefer to enjoy the woods alone: "In the summertime last year I used to always go over there and sit and... it's peaceful. I love the trees. And I can meditate in there." The woods can provide refuge from daily life, in a place that "doesn't make you feel so much like you're in the city." Whether they are enjoying the forest patch alone or with another person, these respondents appreciate the fact that there are not a lot of other people nearby.

Many residents also mentioned the value of the forest patch to local kids, either for informal nature exploration and the opportunity for free play or for educational activities like school projects. This theme was more prevalent in homeowner neighborhoods, possibly because those residents were more likely to live in multi-generational households where they had raised children or had grown up visiting the woods themselves. Residents described kids taking nature walks, skipping rocks, "exploring," building tree-houses, and catching tadpoles. One woman living in an apartment near Springfield

Woods explained, “We need more outdoors and something for kids to learn from. Not just in the classroom but somewhere to go and have field trips, and study nature.” Another woman who grew up next to the Perring Loch-Chinquapin Run forest recalled her childhood experiences fondly: “Not just me, but my sisters and the kids in the neighborhood, we would call ourselves camping, day camping, and we would take food down there and... we’d walk along in the creek.” The seclusion of the forest patch allows children to escape city life, fostering creative play and also interaction with the plants, animals, and other components of the forest ecosystem.

It is the wild qualities of these forest patches that lead to the recreational and inspirational benefits that both adults and children derive from these urban green spaces. However, some residents also criticized the lack of physical amenities in the space, discussing their preference for more benches, picnic areas, paths, playgrounds, and gardens. One woman said she might consider going into HEPP Park “maybe if it was more of a park feel. To me it’s just woods.” A few women explained that they might bring their children to the forest if there were more amenities, but right now there’s “nothing there.” If more formal structures were added to the forest patches, they might make additional residents feel welcome in the woods, but could also detract from the benefits they currently provide as sites of wild urban nature. One woman thought about entering HEPP Park but turned back “because it was kind of desolate in there.” Others did worry about the potential for crime in the woods and felt that lights or other modifications might improve visibility, making them feel more comfortable. However, this “desolation” is exactly the quality that allows others to experience complete solitude and escape.

Forest patches on vacant land were less likely to provide residents with a sense of refuge, and were also less likely to provoke fear of nature. Although Springfield Woods and HEPP Park exist in the interstices of the urban landscape, periodic community stewardship activities and the lack of large wild animals (deer) may contribute to the perception of these sites as being less wild than the Chinquapin Run sites managed by BCRP. As a result, the forest patches on community stewarded vacant land did not evoke the strongest positive or negative feelings associated with wilderness.

Discussion

The data gathered in this study reveal that forest patches may foster the development of place attachment and environmental identity in Baltimore residents, many of whom derive restorative benefits from these wild urban green spaces. However, the interviews also reveal deep ambivalence within each community and sometimes within individuals. These feelings of ambivalence are illustrated by residents’ discussion of personal identity, perceptions of wildlife, forest patch esthetics, and desired social function. Although there were some differences in the prevalence of the themes across homeownership and forest patch management categories, these universal themes were expressed throughout the four case study sites. For many Baltimore residents, urban forest patches provide a type of wilderness experience, conveying the same lack of human influence as other sites of wild nature. In addition, these perceptions and experiences of urban wilderness

were described by many residents who did not actually enter the forest patch, but rather viewed it from their front stoop or passing along the edge.

Despite the fact that homeowner respondents had lived in their homes for much longer than renters, both groups of respondents were equally likely to relate their identity to the local forest patch. Renters are generally perceived as more transient, while homeowners may develop deep place attachment and place identity after many years (Brown, Perkins, and Brown 2003; Rollwagen 2015). However, the interviews in this study suggest that innate social values are important in determining an individual's nature orientation, regardless of whether they have had long-term regular exposure to a particular local green space. In fact, some renters suggested that they intentionally seek out wild nature in every location where they live, demonstrating a strong sense of environmental identity. Despite living near the woods for a shorter amount of time, these individuals describe a profound connection to the natural world and a resulting sense of personal fulfillment provided by the existence of their local forest patch (Clayton and Myers 2015). Conversely, some homeowners who had lived across from a forest patch for decades described their identity in opposition to nature and had no desire to interact with the green space. Illustrations of environmental identity and anti-environmental identity were found at all four sites, transcending neighborhood categories of homeownership and forest patch management.

Although situated in an urban landscape, Baltimore's forest patches are clearly providing opportunities to observe and interact with wildlife. This study demonstrated the ways in which the physical characteristics of the forest patch can influence the amount and type of wildlife encounters experienced by residents. Residents near forest patches on city parkland were more likely to discuss wildlife experiences, likely because the connectivity of these sites provided habitat for deer populations. Much of the forest existing in Baltimore City parkland is found on large tracts of land, including riparian corridors such as Chinquapin Run. In contrast, community-managed forest patches are generally located on undeveloped parcels of land that are smaller and more isolated from other green spaces.

Close encounters with wildlife were both awe-inspiring and frightening to residents interviewed in this study. Consideration of plant and animal species can be a transformative and transcendent experience, providing an individual with the opportunity to consider what it means to be human (Clayton and Opotow 2003). In addition to contributing to an individual sense of self, many Baltimore residents in this study considered the experience of seeing birds and other wildlife near their home to be an important part of their community. However, at times there was an inherent conflict between the desirable and undesirable elements of wildlife perceived by residents. For example, ambivalent attitudes were demonstrated by residents who valued forest patch songbirds but not the insects they feed on.

Despite the ambivalence provoked by wild urban nature, many Baltimore residents demonstrated place attachment to their local forest patch, indicated by the strength of their emotional bond to the space. However, these same residents sometimes had different perceptions of forest patch aesthetics and desired social functions, reflecting differences in place meaning ascribed to these spaces (Enqvist et al. 2019). As a result, there were differences in beliefs about what kind of space the forest patch is, and how it

should be used and managed accordingly. For some, the woods in their current wild state fulfill a need for privacy and sense of refuge from city life. These residents may experience enhanced autonomy due to the relative lack of social regulations, oversight, and consequences (Clayton and Myers 2015). Others appreciate the forest patch from a distance but would like the forest interior to be more discoverable before they are willing to venture inside. These residents would prefer a forest patch that is less wild and supports increased visitation—one that is more strongly shaped by humans for human use, rather than the interstitial wilderness that results when nature is left to its own devices. Therefore, there are competing desires for the space to provide more structured social functions for the community or to maintain their role in providing privacy and seclusion. Because individuals experience vulnerability in urban natural areas differently based on gender, age, and nature orientation, management interventions that allow some people to feel more comfortable may limit others' ability to derive restorative benefits.

Whether inside park boundaries or not, Baltimore's forests have a reputation for providing cover for criminals, leading some residents to view them as dangerous spaces. However, fear of nature itself was a much more prevalent theme in interviews at all four sites, driven by the "creepy" appearance of forest patch vegetation, the boldness of some urban wildlife, and the mysterious nature of urban wilderness. These resident attitudes support Jorgensen and Tylecote (2007) theory of urban wilderness as a unique type of space that exists in the gaps where human agency gives way to formative natural processes. In the highly controlled and ordered space that is Baltimore City, the appearance of wild nature is unexpected and unfamiliar to local residents. Yet, urban forest patches are hardly pristine nature, and the impact of pollution and other human disturbance is physically apparent to those who observe the space. Therefore, they exist as "interstitial spaces within capitalism's imperfectly formed spatial fabric" (Jorgensen and Tylecote 2007, 452). Both too wild and also too spoiled by human activity, the forest patches are not easily categorized as entirely urban or wilderness and provoke feelings of insecurity in some residents who perceive their unmanaged vegetation or wildlife as out of place or (paradoxically) unnatural.

In addition to fears that messy vegetation might conceal danger, some residents were concerned about making the woods look "presentable." This language implies that the esthetic qualities of the forest patch are a reflection of the local community. In contrast with other themes identified in this study, a majority of respondents described some dissatisfaction with the esthetics of their local forest patch. Lacking visual cues that indicate active care, neighborhood residents may not feel that untended wilderness communicates positive social values to the broader public (Nassauer 1995). Regardless of the forest patch management regime, homeowners were more likely than renters to talk about both positive and negative esthetic values of their local forest patch. With a long-term financial investment, homeowners may be more concerned with neighborhood reputation and its effect on their property values.

The independent variables of homeownership and forest patch management considered in this study may not have captured some of the most important explanatory factors related to perceptions and use of urban forest patches, including individual values and experiences. Childhood nature experiences have been found to be important in

determining adult perceptions and use of urban woodlands (Thompson, Aspinall, and Montarzino 2008), and personal factors, such as gender and past experience, are more influential than social and physical environmental factors in evoking fear of crime in urban green spaces (Maruthaveeran and Konijnendijk van den Bosch 2014). In addition, race and ethnicity have important impacts on the preferences and lived experiences of visitors to parks and natural areas in urban and rural contexts (Byrne and Wolch 2009; Finney 2014).

Conclusions

As a significant portion of Baltimore's tree canopy, forest patches are a critical component of the city's TreeBaltimore campaign, which works to increase urban tree canopy cover citywide. As municipal agencies and local nonprofits work to preserve and augment Baltimore's forest patches, it is important to understand how local residents perceive these wild urban green spaces, whether or not they actively use or steward the forest. Although homeownership and property management regime may lead to nuanced differences in the benefits and concerns related to forest patches across Baltimore neighborhoods, it is clear that both homeowners and renters have strong and ambivalent feelings about these patches of urban wilderness on BCRP and vacant land. Furthermore, this study demonstrates that Baltimore residents living adjacent to forest patches may experience some of the restorative benefits associated with immersion in wild nature, even when they do not actually enter the woods. Urban forest patches foster the development of place attachment and environmental identity in many individuals, providing unique and restorative esthetic experiences and encounters with wildlife. However, these positive perceptions and experiences are balanced by negative emotions resulting from the perception that urban wilderness is chaotic and unpredictable. More human management of messy undergrowth and dead tree limbs would render the impenetrable woods more discernible but may also detract from their restorative wilderness qualities. Natural resource managers from city agencies and community organizations must consider how to balance the variety of preferences for urban forest patch esthetics and social function held by urban communities with a diverse array of social values and experiences.

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References

- Arnberger, A., and R. Eder. 2012. The influence of green space on community attachment of urban and suburban residents. *Urban Forestry & Urban Greening* 11:41–9. doi: [10.1016/j.ufug.2011.11.003](https://doi.org/10.1016/j.ufug.2011.11.003).
- Auyeung, D. S. N., L. K. Campbell, M. L. Johnson, N. F. Sonti, and E. Svendsen. 2016. Reading the landscape: Citywide social assessment of New York City parks and natural areas in 2013–2014. Social Assessment White Paper No. 2. New York, NY: NYC Department of Parks & Recreation.
- Avins, M. 2013. *Baltimore's forest patches: Emerald assets for ecosystem services*. Baltimore, MD: Baltimore Green Space.
- Baltimore Department of Public Works. 1926. *Report and recommendation on park extensions for Baltimore*. Baltimore, MD: DPW City Plan Committee.
- Baxter, J., and J. Eyles. 1997. Evaluating qualitative research in social geography: Establishing 'rigour' in interview analysis. *Transactions of the Institute of British Geographers* 22 (4):505–25. doi: [10.1111/j.0020-2754.1997.00505.x](https://doi.org/10.1111/j.0020-2754.1997.00505.x).
- Bolan, M. 1997. The mobility experience and neighborhood attachment. *Demography* 34 (2): 225–37. doi: [10.2307/2061701](https://doi.org/10.2307/2061701).
- Bonnes, M., P. Passafaro, and G. Carrus. 2011. The ambivalence of attitudes toward urban green areas: Between proenvironmental worldviews and daily residential experience. *Environment and Behavior* 43 (2):207–32. doi: [10.1177/0013916509354699](https://doi.org/10.1177/0013916509354699).
- Boone, C. G., G. L. Buckley, J. M. Grove, and C. Sister. 2009. Parks and people: An environmental justice inquiry in Baltimore, Maryland. *Annals of the Association of American Geographers* 99 (4):767–87. doi: [10.1080/00045600903102949](https://doi.org/10.1080/00045600903102949).
- Brown, B., D. D. Perkins, and G. Brown. 2003. Place attachment in a revitalizing neighborhood: Individual and block levels of analysis. *Journal of Environmental Psychology* 23 (3):259–71. doi: [10.1016/S0272-4944\(02\)00117-2](https://doi.org/10.1016/S0272-4944(02)00117-2).
- Byrne, J., and J. Wolch. 2009. Nature, race, and parks: Past research and future directions for geographic research. *Progress in Human Geography* 33 (6):743–65. doi: [10.1177/0309132509103156](https://doi.org/10.1177/0309132509103156).
- Carrus, G., R. Laforteza, G. Colangelo, I. Dentamaro, M. Scopelliti, and G. Sanesi. 2013. Relations between naturalness and perceived restorativeness of different urban green spaces. *Psychology* 4 (3):227–44. doi: [10.1174/217119713807749869](https://doi.org/10.1174/217119713807749869).
- City of Seattle. 2013. Urban forest stewardship plan. <https://www.seattle.gov/trees/docs/2013%20UrbanUrban%20Fores%20Stewardship%20Plan%20091113.pdf> (accessed December 10, 2018).
- Clayton, S., and G. Myers. 2015. *Conservation psychology: Understanding and promoting human care for nature*. Oxford, UK: Wiley-Blackwell.
- Clayton, S., and S. Opatow. 2003. *Identity and the natural environment: The psychological significance of nature*. Cambridge, MA: MIT Press.
- Emmanuel, R. 1997. Urban vegetational change as an indicator of demographic trends in cities: The case of Detroit. *Environment and Planning B: Planning and Design* 24 (3):415–26. doi: [10.1068/b240415](https://doi.org/10.1068/b240415).
- Enqvist, J. P., L. K. Campbell, R. C. Stedman, and E. Svendsen. 2019. Place meanings on the urban waterfront: A typology of stewardships. *Sustainability Science* 14 (3):589–605. doi: [10.1007/s11625-019-00660-5](https://doi.org/10.1007/s11625-019-00660-5).
- Feldman, R. M. 2007. *Post-occupancy evaluation of restored natural areas in Chicago's Lincoln Park*. Chicago, IL: City Design Center.
- Finney, C. 2014. *Black faces white spaces: Reimagining the relationship of African Americans to the great outdoors*. Chapel Hill, NC: UNC Press Books.
- Hur, M., J. L. Nasar, and B. Chun. 2010. Neighborhood satisfaction, physical and perceived naturalness and openness. *Journal of Environmental Psychology* 30 (1):52–9. doi: [10.1016/j.jenvp.2009.05.005](https://doi.org/10.1016/j.jenvp.2009.05.005).

- Jansson, M., H. Fors, T. Lindgren, and B. Wiström. 2013. Perceived personal safety in relation to urban woodland vegetation – A review. *Urban Forestry & Urban Greening* 12:127–33. doi: [10.1016/j.ufug.2013.01.005](https://doi.org/10.1016/j.ufug.2013.01.005).
- Jorgensen, A., J. Hitchmough, and N. Dunnett. 2007. Woodland as a setting for housing: Appreciation and fear and the contribution to residential satisfaction and place identity in Warrington New Town, UK. *Landscape and Urban Planning* 79 (3–4):273–87. doi: [10.1016/j.landurbplan.2006.02.015](https://doi.org/10.1016/j.landurbplan.2006.02.015).
- Jorgensen, A., and M. Tylecote. 2007. Ambivalent landscapes—Wilderness in the urban interstices. *Landscape Research* 32 (4):443–62. doi: [10.1080/01426390701449802](https://doi.org/10.1080/01426390701449802).
- Keil, A. 2005. Use and perception of post-industrial urban landscapes in the Ruhr. In *Wild urban woodlands: New perspectives for urban forestry*, ed. I. Kowarik and S. Korner, 117–30. Berlin, Germany: Springer-Verlag.
- Kilvington, M., and W. Allen. 2005. Social aspects of biodiversity in the urban environment. In *Greening the city: Bringing biodiversity back into the urban environment*, ed. M. I. Dawson, 29–35. Christchurch, New Zealand: Lincoln University, Royal New Zealand Institute of Horticulture.
- Konijnendijk, C. C. 2005. New perspectives for urban forests: Introducing wild woodlands. In *Wild urban woodlands: New perspectives for urban forestry*, ed. I. Kowarik and S. Korner, 33–45. Berlin, Germany: Springer-Verlag.
- Koole, S. L., and A. E. Van den Berg. 2005. Lost in the wilderness: Terror management, action orientation, and nature evaluation. *Journal of Personality and Social Psychology* 88 (6):1014–28. doi: [10.1037/0022-3514.88.6.1014](https://doi.org/10.1037/0022-3514.88.6.1014).
- Korpela, K. M., M. Ylén, L. Tyrväinen, and H. Silvennoinen. 2010. Favorite green, waterside and urban environments, restorative experiences and perceived health in Finland. *Health Promotion International* 25 (2):200–9. doi: [10.1093/heapro/daq007](https://doi.org/10.1093/heapro/daq007).
- Kowarik, I. 2005. Wild urban woodlands: Towards a conceptual framework. In *Wild urban woodlands: New perspectives for urban forestry*, ed. I. Kowarik and S. Korner, 1–32. Berlin, Germany: Springer-Verlag.
- Kowarik, I. 2018. Urban wilderness: Supply, demand, and access. *Urban Forestry & Urban Greening* 29:336–47. doi: [10.1016/j.ufug.2017.05.017](https://doi.org/10.1016/j.ufug.2017.05.017).
- Lagrosa, J. J., J. M. Grove, N. F. Sonti, and A. Kirchgraber. 2017. Land-use and land cover of Baltimore City in 1927. Poster presented at the Baltimore Ecosystem Study 19th Annual Meeting, Baltimore, MD, October 24–25, 2017.
- Lofland, J., D. A. Snow, L. Anderson, and L. H. Lofland. 2006. *Analyzing social settings: A guide to qualitative observation and analysis*. Belmont, CA: Thomas Wadsworth.
- Manzo, L., and D. Perkins. 2006. Finding common ground: The importance of place attachment to community participation and planning. *Journal of Planning Literature* 20 (4):335–50. doi: [10.1177/0885412205286160](https://doi.org/10.1177/0885412205286160).
- Martens, D., H. H. Gutscher, and N. Bauer. 2011. Walking in “wild” and “tended” urban forests: The impact on psychological well-being. *Journal of Environmental Psychology* 31 (1):36–44. doi: [10.1016/j.jenvp.2010.11.001](https://doi.org/10.1016/j.jenvp.2010.11.001).
- Maruthaveeran, S., and C. C. Konijnendijk van den Bosch. 2014. A socio-ecological exploration of fear of crime in urban green spaces—A systematic review. *Urban Forestry & Urban Greening* 13:1–8. doi: [10.1016/j.ufug.2013.11.006](https://doi.org/10.1016/j.ufug.2013.11.006).
- Morris, J., E. O’Brien, B. Ambrose-Oji, A. Lawrence, C. Carter, and A. Peace. 2011. Access for all? Barriers to accessing woodlands and forests in Britain. *Local Environment* 16 (4):375–96. doi: [10.1080/13549839.2011.576662](https://doi.org/10.1080/13549839.2011.576662).
- Nassauer, J. I. 1995. Messy ecosystems, orderly frames. *Landscape Journal* 14 (2):161–70. doi: [10.3368/lj.14.2.161](https://doi.org/10.3368/lj.14.2.161).
- Natural Areas Conservancy. 2016. New York City NATURE Goals 2050. http://naturalareasnyc.org/content/goals/nac_naturegoals_design_full_161025-compressed.pdf (accessed December 10, 2018).
- Ogden, L. A., C. Aoki, J. M. Grove, N. F. Sonti, W. Hall, D. Locke, S. T. A. Pickett, M. Avins, K. Lautar, and J. Lagrosa. 2019. Landscape ethnography: An approach to study the environmental

- history and political ecology of urban forests. *Urban Ecosystems* 22 (1):49–63. doi: [10.1007/s11252-018-0744-z](https://doi.org/10.1007/s11252-018-0744-z).
- Ralston, K. 2017. Baltimore forest stewards: Visions and motivations. Paper presented at the American Association of Geographers Annual Meeting, Boston, Massachusetts, April 5–9, 2017.
- Rollwagen, H. 2015. Constructing renters as a threat to neighbourhood safety. *Housing Studies* 30 (1):1–21. doi: [10.1080/02673037.2014.925099](https://doi.org/10.1080/02673037.2014.925099).
- Rupprecht, C. D. D., and J. A. Byrne. 2014. Informal urban greenspace: A typology and trilingual systematic review of its role for urban residents and trends in the literature. *Urban Forestry & Urban Greening* 13:597–611. doi: [10.1016/j.ufug.2014.09.002](https://doi.org/10.1016/j.ufug.2014.09.002).
- Rupprecht, C. D. D., J. A. Byrne, and A. Y. Lo. 2016. Memories of vacant lots: How and why residents used informal urban green space as children and teenagers in Brisbane, Australia, and Sapporo, Japan. *Children's Geographies* 14 (3):340–55. doi: [10.1080/14733285.2015.1048427](https://doi.org/10.1080/14733285.2015.1048427).
- Ryan, R. L. 2005. Exploring the effects of environmental experience on attachment to urban natural areas. *Environment and Behavior* 37 (1):3–42. doi: [10.1177/0013916504264147](https://doi.org/10.1177/0013916504264147).
- Skår, M. 2010. Forest dear and forest fear: Dwellers' relationships to their neighbourhood forest. *Landscape and Urban Planning* 98 (2):110–16. doi: [10.1016/j.landurbplan.2010.07.017](https://doi.org/10.1016/j.landurbplan.2010.07.017).
- Thompson, C. W., P. Aspinall, and A. Montarzano. 2008. The childhood factor: Adult visits to green places and the significance of childhood experience. *Environment and Behavior* 40 (1): 111–43. doi: [10.1177/0013916507300119](https://doi.org/10.1177/0013916507300119).
- Thompson, C. W., J. Roe, and P. Aspinall. 2013. Woodland improvements in deprived urban communities: What impact do they have on people's activities and quality of life? *Landscape and Urban Planning* 118:79–89. doi: [10.1016/j.landurbplan.2013.02.001](https://doi.org/10.1016/j.landurbplan.2013.02.001).
- Threlfall, C. G., and D. Kendal. 2018. The distinct ecological and social roles that wild spaces play in urban ecosystems. *Urban Forestry & Urban Greening* 29:348–56. doi: [10.1016/j.ufug.2017.05.012](https://doi.org/10.1016/j.ufug.2017.05.012).
- Tyrväinen, L., A. Ojala, K. Korpela, T. Lanki, Y. Tsunetsugu, and T. Kagawa. 2014. The influence of urban green environments on stress relief measures: A field experiment. *Journal of Environmental Psychology* 38:1–9. doi: [10.1016/j.jenvp.2013.12.005](https://doi.org/10.1016/j.jenvp.2013.12.005).
- United States Census Bureau. 2013. 2009–2013 American Community Survey. U.S. Census Bureau's American Community Survey Office. <http://factfinder2.census.gov> (accessed December 10, 2018).
- van den Berg, A. E., and C. C. Konijnendijk. 2012. Ambivalence towards nature and natural landscapes. In *Environmental psychology: An introduction*, ed. L. Steg, J. I. M. de Groot, and E. A. van den Berg, 67–76. Oxford, UK: British Psychological Society and Wiley-Blackwell.
- van den Berg, A. E., and M. Ter Heijne. 2005. Fear versus fascination: An exploration of emotional responses to natural threats. *Journal of Environmental Psychology* 25 (3):261–72. doi: [10.1016/j.jenvp.2005.08.004](https://doi.org/10.1016/j.jenvp.2005.08.004).
- Von Wirth, T., A. Grêt-Regamey, C. Moser, and M. Stauffacher. 2016. Exploring the influence of perceived urban change on residents' place attachment. *Journal of Environmental Psychology* 46:67–82. doi: [10.1016/j.jenvp.2016.03.001](https://doi.org/10.1016/j.jenvp.2016.03.001).
- Warren, C. A. B., and T. X. Karner. 2010. *Discovering qualitative methods: Ethnography, interviews, documents, and images*. New York, NY: Oxford University Press.
- Yin, R. K. 2012. A (very) brief refresher on the case study method. In *Applications of case study research* 3rd Ed., 3–20. Thousand Oaks, CA: Sage Publications.