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In Defense of Cities: On Negative Presentation of Urban Areas in Environmental Preference Studies

Anu Besson

Abstract

This paper critiques a common research method, image-based studies, in assessing environmental preferences. The method is used, in particular, in the fields of environmental psychology, landscape studies, and health studies, here called empirical environmental preference studies or EEP studies. I argue that the established view in the EEP field that nature is inherently experienced as more aesthetically appealing and restorative than urban environments may be biased because of the image-based method. This paper presents a literature review of EEP studies, discussing them in a framework of environmental and everyday aesthetics. The conclusion is that EEP studies may strip cities of their physical, socio-cultural, and aesthetic layers; and comparing nature and cities as places of restoration may be unfruitful as our relationship with nature and urban environments is dissimilar.

Key Words

aesthetics of ambience; aesthetics of engagement; environmental aesthetics; environmental preference studies; multi-sensory experience; urban environments

1. Introduction

Aesthetics of urban environment are primarily studied in the fields of architecture and placemaking; sociology; consumer studies and marketing; everyday and environmental aesthetics; and empirical environmental preference studies, or EEP studies.[1] My focus is on the EEP field, which aims to identify universal preferences and has generated the largest body of empirical data and the most negative views about cities. I examine how cities are typically studied, presented, and discussed in that field by reviewing studies by influential researcher Roger Ulrich and twenty EEP studies by other researchers. My focus is on examining the relationship between common study methods, image-based and in-situ, and their results. The main question is how reliably a two-dimensional image can convey an experience of temporal, spatial, and somatic dimensions of environment.

Image-based studies are surveys where subjects are asked to rate images or videos of pre-selected environments on a given scale, for example, based on their perceived aesthetic appeal or restorativeness. Environments that enable recovery from mental fatigue or stress are called restorative. To ensure that study subjects share a comparable emotional baseline, a common research pre-step is to induce stress, usually via cognitive task-executing or negatively arousing imagery.[2] The required presence of stress stems from the presumption that preferred environments have calming rather than arousing qualities because negative arousal, including stress, may have negative mental or physical health implications. In-situ studies typically comprise interviews with or observations of subjects in a studied environment. A common supplementary research method is data cross-mapping.[3]

For the past decades, EEP studies have focused on the importance of our access to nature because of the hypothesis that humans innately prefer nature—in this context, greenery and water—over artificial environments.[4] Presumably, we find nature more appealing than cities because of evolutionary or biological reasons. What has aided our species' survival in the past is viewed as restorative and, hence, aesthetically attractive. Consequently, it must be beneficial for us to live surrounded by nature or in nature-imitating settings.[5] Concurrently, a body of studies has emerged about the harms and risks of city life.[6] Cities are seen to contain personal stressors related to social interactions, identity, and fulfillment of needs, in addition to external stressors such as pollution, noise, crowds, and other negative aesthetics.[7] It has become mainstream knowledge that nature has substantial positive impact, exceeding that of cities, on our mental, physical, and emotional well-being.[8]

In an attempt to identify the most preferred, beneficial, or least harmful environments, EEP studies typically focus on external stress by asking what in the

physical environment causes, reduces, or restores us from it.[9] But, given that an increasing number of people holiday in or move to cities year after year,[10] the juxtaposition of positively experienced nature and negatively experienced cities appears simplistic. I examine the empirical evidence about cities being perceived *de facto* as less aesthetically attractive than nature and contextualize my findings in the framework of everyday and environmental aesthetics and cultural history.

2. On experiencing environment aesthetically

Can the aesthetics of a landscape be conveyed by an image? This has for long been a pertinent question in aesthetics, and it inevitably evokes other questions such as: what is the nature of aesthetic experience, and what senses could or should participate in an aesthetic experience? Environmental and everyday aesthetics have expanded our view on what can be experienced aesthetically, including how all senses and different cognitive aspects can participate in it.[11] Specifically, Allen Carlson and Arnold Berleant have criticized equating landscapes with images and attempts to quantify features or qualities of environments to calculate their aesthetic value.[12] A summary of the relevant discussion is provided by Marta Tafalla and Ira Newman.[13]

Since the 1970s, it has been a widespread practice in the EEP field to formalistically study the environment, focusing on colors, shapes, and forms, in an attempt to quantify the aesthetic value of environments. This links to the era's prominent theory in art criticism, formalism.[14] It also draws from the idea of positive aesthetics; nature only or primarily has positive aesthetic qualities such as order, balance, unity, and harmony, whereas artificial environments possess these in rarer instances. Positive aesthetics have been debated and also opposed in environmental aesthetics but the approach remains strong in the EEP field, in particular among the supporters of biophilia.[15] Carlson argues that the attempt to view landscapes as art is inherently flawed because by doing so some parts of nature are not positively experienced and this approach does not include ecological value.[16]

Berleant, in turn, argues that experiencing environment aesthetically is about engagement, not about two-dimensional static representation. Engagement means being embodied by and interacting with one's surroundings. Cognitive and experiential meanings—knowledge-based and lived-through associations, bodily stances and intimations—are complementary and necessary aspects of aesthetic experience. Similarly, our beliefs, values, and attitudes participate in the process of interpreting and structuring the experience; "environment is an interrelated and interdependent union of people and place" and that is why "we cannot discover the aesthetic value of [an environment] ... from an accumulation of particular amenities." [17] Berleant suggests that in assessing aesthetic qualities we ought to move beyond the objects of assessment to the experience itself.[18]

If environments should not be viewed as art or focusing on the scenic, what, then, makes them attractive or unattractive? Berleant discusses modes of negative environmental aesthetics. Regarding built environment, his examples are commercial strip developments and shopping malls that assault the senses because of their vulgarity, marketing hyperbole, visual shrillness, and false or contrived aesthetic features, such as cheap imitations of valuable materials. Berleant's other modes of negative aesthetics are: the banal, lack of imagination or new possibilities; the dull, clumsy technique or shallow imagination; the unfulfilled, the "scarring misuse and lost possibilities;" the inappropriate, not fit for its purpose or surroundings; and the trivializing and the deceptive, such as "cliché-riddled pastiches" from history. Possibly the most harmful mode of negative aesthetics is the destructive, such as constructions that divide or repress socially.[19]

Approaching aesthetic appeal from a different angle, Yuriko Saito discusses the aesthetics of ambience and atmosphere: how we experience a situation as a whole, appraising its ingredients, such as the blend of tactile, visual, auditory, and somatic elements. According to Saito, sometimes parts fit together to give rise to a satisfying experience, whereas at other times a mismatch is a dissonance, for example, hearing Italian music in a traditional Japanese restaurant. The same element may be satisfying in one setting but dissatisfying in another. A fast food restaurant may fit into an urban landscape but not in natural

scenery. Aesthetics of ambience links to "the sense of place," the recognizable, anticipated, or unique mix of sensations and perceptions. The aesthetics of ambience is also about the appropriateness of elements to the context and situation, such as seasonal decorations.[20]

Saito raises another essential angle to experiencing the environment aesthetically, demonstrated by the Japanese practice of expressing one's sensitivity and considerateness via the sensuous appearance of artifacts and actions, or, how one behaves or makes things to convey one's caring attitude and to give aesthetic joy.[21] Although the Western culture, in general, does not go to similar lengths in sensitive consideration as Japanese culture, this social aesthetic element is crucial in everyone's everyday life. How we behave and show consideration or inconsideration towards others' aesthetic sensibility affects our experience of the world. This is particularly salient where masses congregate, including cities.

3. Environmental preference studies

To examine how cities are viewed in the EEP field, I discuss a range of studies by influential researcher Roger Ulrich and a literature review of twenty EEP studies from other researchers. I aim to provide an overview on a) what has influenced the development of the consensus about cities as less attractive environments than nature; and b) what is the current perception or presentation of cities in this field.

Ulrich has researched the positive effects of nature since the 1970s. His perhaps most famous finding is that viewing nature through a window appears to speed recovery after surgery.[22] Ulrich is interested in the stress-reducing or health-inducing effects of nature as experienced via, for example, posters, windows, pot plants, hospital gardens and virtual imagery.[23] His focus follows his 1979 findings that revealed that stressed individuals feel better after viewing images of nature but sadder and more aggressive after viewing images of urban environment. He surveyed 100 images, half from nature, half from commercial and industrial areas in the US, and commented: "no people or animals were visible in either the nature or urban collections. The absence of people probably increased the pleasantness levels of the urban as well as nature scenes." [24] The study excluded residential and sacred places to avoid potential "emotional bias."

Since Ulrich's 1979 study, a large body of research has emerged corroborating Ulrich's view that built environments are more stress-inducing or less restorative than nature, as summarized by Ana Karinna Hidalgo: "cities aim to provide people with environments that improve their quality of life. However, cities, and specifically streets, produce urban stressors that threaten the ability of people to restore themselves from stress and mental fatigue." [25] The common conclusion in the EEP field is that people do not yet possess evolved capabilities to appreciate or adapt to city life and urban environments, hence we need respite in "our original home," nature.

My literature review that informs this paper consists of ten image-based and ten in-situ studies, listed in Attachment 1.[26] The key findings of the studies can be grouped into four categories: social aspects, greenery, place attachment and multisensory experience, and formal aesthetic features. Overall, I noted several problematic aspects in the reviewed studies. Image-based studies tended to focus on formal qualities, such as colors, forms, and lines; some researchers even enhanced this focus by only supplying monochromatic images to the subjects (Shi et al., 2014).[27] Definitions for 'urban' and 'natural' environments were not consistent. For example, each city study assessed different parts of cities, including plazas, heritage areas, scenic harbors, aerial views, pocket parks, high-traffic corridors, and empty streets, whereas nature images ranged from woodlands to pastoral and parkland sites.

All city images contained vegetation ranging from very little to abundant, some city images contained waterfronts or water features, and all urban environments were affected by nature, at minimum by weather and season.[28] In contrast, nature photos nearly always depicted some human influence, such as walking paths or signs of agriculture. In 1979, Ulrich excluded humans and animals from his images, and this approach is still in use.[29] My literature review was not able to establish whether people and animals were systematically included or

excluded, as it was not consistently addressed in the studies, but exclusion appeared more likely.[30] Below, I discuss the four main themes that emerged in the literature review affecting the environmental aesthetic experience.

3.1. *Social aspects*

The restorativeness of a place appeared to mostly arise from the experience of fascination (Troffa & Fornara, 2011) that was provided by nature but also by places of social interaction, such as cafés and restaurants (Lorenzo et al., 2016), along with historical or social areas including waterfronts, pedestrian streets, and public squares, in particular where these were combined with urban greenery (Bornioli, 2018). Subjects of low-anxiety personality types experienced hectic urban environments as equally or more restorative than nature (Newman & Brooks, 2014), whereas green spaces depleted in restorative value where they became crowded (Bornioli, 2018).

These findings indicate that fascination and social interaction are interlinked and pertinent to restoration and aesthetic appeal. These findings are poignant, considering the approach to exclude people from studied images. The purpose of the exclusion is to direct attention to the fixed and permanent elements. However, just as nature is by definition organic, our everyday experience of the city is not solely or primarily about the immutable. Jane Jacobs and Jan Gehl have argued from the 1960s that vibrant street life is what makes a city, and the current placemaking movement demonstrates how this resonates with today's city planners and communities.[31] It can be argued that images without people present nature as "supposed to be" but cities as "not supposed to be". Cities exist for social interaction, and the eeriness of empty streets is evident in horror entertainment. Films like *28 Days Later* (2001), video games like *Fallout* (series from 1997-), and documentaries about Chernobyl revolve around the thrilling horror of desolation of once-lively places. This fascination may arise from the negative sublime of contemplation of destruction, but the abnormality of abandonment is the cornerstone of the experience.

If cities are not meant to be empty, they are not appreciated if they are overcrowded, either. Hidalgo identified "crowded" and "noisy" as qualities of public space that can cause irritability and other negative effects.[32] But, the experience of a crowd is context-dependent. Being stuck in rush hour and celebrating the New Year's Eve in a crowd are entirely different experiences. People are drawn together for events to share and be influenced by others' emotions. Creating reasons for gatherings is one of the main objectives of urban (re)vitalization.[33] Where is the line between vibrancy and negative crowding? Referring to Saito's aesthetics of ambience and parts forming the whole, this appears culture- and situation-dependent. What parts and what whole do we wish to experience? For example, young people flock in the fashion district of Harajuku, Tokyo, so tightly it is hard to weave through. For the uninitiated, Harajuku is an urban nightmare, but for the teenagers, the more the merrier.[34] In contrast, Bornioli found that crowded green spaces deplete in restorative potential, and this, I suggest, is because it clashes with our expectation about "appropriate," that is, quiet and serene, nature.

3.2. *Greenery*

Stressed subjects rated nature as more beautiful and restorative than cities or an empty room, but the difference in ratings diminished where subjects were not stressed. Furthermore, the restorative potential depended on compatibility between the environment and subject, such as expectations and personal preferences (van den Berg et al., 2003; Newman & Brooks, 2014; Hartig & Staats, 2006; Berto et al., 2015; Sahlin et al., 2016). In urban greenery, dense yet maintained canopy and shrubbery were the most preferred (Suppakittpaisarn, 2018). City dwellers who had access to greenery and waterfronts were more satisfied with their city than those who lacked them (Yilmaz, 2015), and city dwellers were more willing to accept high-density development if increased tree cover and information about sustainability were also provided (Cheng et al., 2017). However, in selecting urban walking routes, subjects prioritized low speed limit, low traffic volume, and upkeep over greenery (van Cauwenberg et al., 2016).

Although the affinity for greenery was evident in my literature review, none of the studies sought to discuss potential reasons for disliking the lack of greenery beyond any evolution- or biology-based points. Empty parking lots and sandy deserts are scant in greenery and water, yet people travel to see deserts but not parking lots. The over-familiarity of parking lots compared to the rarity of deserts does not explain the difference, because people living in deserts can find them beautiful whereas people living surrounded by parking lots rarely find them beautiful.[35] In a Western context, the usual urban areas that most often lack greenery are for industrial, utility, storage, or high-volume traffic use. The lack of greenery in such a place signals that it is a culturally coded non-place, not meant for anyone's social or aesthetic enjoyment.[36] The usage of such places usually means monotonic, uninteresting design, and the lack of points of fascination, such as detail-richness or presence of other people to observe. I suggest that the lack of aesthetic considerateness is one reason for the lack of aesthetic appeal of non-green areas, discussed further in Section 3.4.

Conversely, too much greenery can be experienced as unpleasant or even threatening, evidenced by the common practice in Western cities to trim, prune, and keep urban vegetation under control for aesthetic and safety reasons.[37] Plenty has been written about how romanticism affected how we see wilderness as a source of recreational and aesthetic pleasure instead of a source of unpredictability and danger.[38] We have a millennia-long history of appreciating scenic, picturesque, and tamed nature.[39] It could even be asked whether urban greenery is a more reliable or appropriate source for aesthetic pleasure than wild nature because manicured greenery rarely has connotations of anything threatening. I suggest that the aesthetic pleasure associated with urban greenery is, at least partially, drawn from the blend or balance of natural and artificial elements: the composition and contrast of the permanent and fixed versus the organic and changeable. I propose that the interplay of nature and urban elements is an essential part of the appeal of good-quality urban areas, as seen in Image 1.



photograph by the author, Perth, Australia

3.3. Place attachment and multisensory experience

Restoration appears to arise from place attachment and positive memories, connotations, and knowledge of the place (Maulan et al., 2006; Vidal et al., 2012). For example, favorite places of young adults, from most to least mentioned, were a private home, restaurant/city center, nature, and a sports facility, because favorite place supports the sense of identity as well as attention-recovery (Korpela, 1991). Urban landscape preferences were influenced by personal feelings, knowledge, memories, and multisensory experience of that place; urban places that provided interaction between people and place and contained signs of history and traditions were perceived as aesthetically attractive (Ginzarly & Teller, 2018).

In in-situ studies, people find positive qualities, including aesthetic appeal and restorativeness, in socially active, historically meaningful or sensory-rich urban environments, whereas in image-based studies, nature nearly always outranks urban environments.[40] This appears to reflect the research position and viewing convention, criticized by Carlson and Berleant, where images of landscapes are looked at as art or in expectation of scenic or picturesque content. I suggest that because of this convention we are more accustomed to viewing nature as scenic images—landscape art, postcards, holiday photos—than urban locations, which are not all scenic yet may offer other positive aesthetic qualities, such as sounds, scents, and ambience when experienced in-situ. Agreeing with Berleant, I suggest that the discrepancy between the results of image-based and in-situ studies stems from the fact that viewing an image and attending to a multisensory, spatial, temporal location are different experiences, and it is misguided not to critically consider the importance of embodiment in the EEP studies.

The image-based method is not the only study method in the EEP field. Are image-based studies problematic, if other methods, such as in-situ studies or data cross-mapping, produce similar results? Here we must consider whether different methods accumulate causal or merely parallel information. For example, cross-mapping crime statistics and percentage of greenery in a city may not indicate the restorative effect of nature but the fact that poor or socially problematic areas tend to receive less attention and funding for good-quality green spaces. To illustrate, in images 2 and 3 the quantity of greenery is approximately the same, that is, on a map their greenery statistics would be nearly identical, yet the aesthetic experience differs based on the architecture and street layout. Each study method's strengths and weaknesses should be critically assessed and the results carefully examined for whether they support other studies' findings or merely correlate, without causation.





photographs by the author, Perth, Australia

3.4. Formal aesthetic features

Plenty of interest in the EEP field is directed to formalistic questions, such as identifying preferred shapes, lines, and colors. For example, subjects preferred stylistically unified streetscapes even if they preferred other architectural styles in individual locations (Stamps III, 1994); city dwellers preferred open urban spaces with pathways, visual connection to adjacent spaces, and clear and navigable spatial structure (Shi et al., 2014); a barren, chaotic, monotonous and ugly highway corridor was perceived to visually improve with planted trees (Alabi & Oriola, 2014); pollution, population density, traffic, and lack of greenery were experienced as stressful (Yilmaz, 2015); and the most appreciated green elements were manicured, well-kept, or picturesque over untouched nature (Khew et al., 2014).

The positive aesthetic qualities were identified as unified, manicured, well-kept, picturesque, and navigable, and negative qualities were crowded, chaotic, barren, monotonous, and ugly. Undoubtedly, as discussed by Berleant, cities harbor negative aesthetics, including visual chaos, sensory overload, or utterly bland places. The negativity associated with cities does not appear to simplistically arise from the lack of natural elements because the subjects appreciated manicured, urban greenery over untouched nature. Rather, as Berleant argues, we tend to dislike places that restrict our imagination, aesthetic enjoyment, exploration, and expansion.^[41] I suggest that places we usually perceive as unattractive are meant primarily for machines or economic efficiency, such as motorways, utility, storage, and bulk commercial areas, rather than for people's social, cultural, or aesthetic enjoyment, and the purpose and interlinked appearance of such places limits the positive "expansive" experiences discussed by Berleant.

A similar point is found in Saito's discussion about aesthetic considerateness. Saito argues that the appearance of a thing communicates our intentions, that is, how much we care about others' aesthetic sensibility. For example, in Image 4, a building on the right appears a monotonous bulk product, whereas the building on the left appears hand-crafted, hence more aesthetically considerate. I suggest that the places Berleant calls "restrictive" and Saito calls aesthetically inconsiderate are experienced as unattractive because they do not convey positive, if any, consideration for aesthetic sensibility. This does not mean such places cannot be made aesthetically considerate. In Australia, a mass-scale mall revitalization wave is underway, usually including a facelift with art, design, and greenery; and Mexico City is becoming renowned for its initiative for vertical gardens, plants covering bland concrete highway structures.^[42]



photograph by the author, Perth, Australia

4. City as an aesthetic problem

Place attachment, positive memories and connotations, and multisensory experience significantly influence environmental preference, and image-based surveys tend to lead to landscapes being assessed as artworks, whereas in-situ methods capture also other aesthetic and restorative qualities (Maulan et al., 2006, and Vidal et al., 2012). Likewise, my literature review identified that subjects appeared to treat image-based studies as assessments of scenic or picturesque qualities of images. It is conceivable that the long-held convention of looking at landscapes as art gears subjects to seek scenic qualities in images of nature, whereas other aesthetic qualities, including scents, sounds, and ambience, may be more pertinent in urban environments than scenic appeal. In light of this, we need to question the apparent findings of EEP field that city poses an aesthetic problem because it contains more negative than positive aesthetics.

Cities indisputably can cause sensory overload or deprivation. Ulrich discovered that subjects found industrial and commercial environments, mainly parking lots and strip malls, aesthetically unappealing. Berleant argues that certain commercial environments are aesthetically offensive and ugly because of the incoherence, gaudy signage, banality, kitsch, and engineered anxieties and discomfort arising from overbearing sensations.^[43] Nevertheless, it needs to be recognized that cities offer aplenty to experience positively. Many architects and experts of aesthetics seem to find malls vulgar and unattractive, whereas consumers seem to enjoy the social and aesthetic experience they can offer.^[44] Is this a question of taste or development of taste? I suggest it is more about perspective. Anna Kortelainen has discussed how department stores in the 1800s were the first public spaces designed for and freely accessible to women:

Women took the city in a rebellious way when they rushed into the department store without chaperones and could stroll around, experiencing sensuous pleasures... At the other side of the counter were the saleswomen, the "queens of the working class"... Department store still is a women's world, a sanctuary in a hostile city space... Department store holds promises about self-actualization and sensuous femininity, forbidden passions and even crime, but first and foremost about women's culture, unwritten history of women.^[45]

Commercial spaces highlight the artificial division between interiors and exteriors of a city when in reality they are intertwined and porous. When experts of architecture assess public space, they often focus on the external such as the façade and streetscapes, whereas the everyday experience of the city is about both, indoors and outdoors. Cities are a constellation of buildings of different services. The overall aesthetic experience about urban environment does not switch on and off when we enter or exit buildings. Shops, restaurants, and cafes entice us precisely with the promise of sensuous pleasures, aesthetic appeal, and

the relationship we can have with these places. Focusing on facades and exteriors does not tell the whole story of experiencing a city.

Currently, EEP studies concentrate on the healing power of nature. This is important but unnecessarily dichotomizing; nature as gardens and parks has been a building block of cities for millennia.[46] During the past two centuries, the interest in urban greenery has peaked. The tree-lined boulevards of Paris, since their establishment in 1853, became imitated by other cities. The first urban parks in the US, "pleasure grounds" for the wealthy, emerged in 1850. From 1900 onwards, many cities built "reform parks", healthy outdoors for the working class. Since the 1930s, parks and sporting ovals have become essential recreational facilities. The goal of urban greenery has been, from the beginning, to reform and improve city and its residents. For example Joseph Strutt, the creator of the first public park in the UK, the Arboretum, in 1840, expected it to deliver "social improvements, develop the working class' moral conduct... and enhance their industriousness." [47] The need to bring nature to cities speaks of the long-standing tendency to dichotomize nature and built environment, seeing the former as positive and the latter as negative, when it is more accurate to think of nature and city as parallel, intertwined, and complementary.

The still-held idea of positive nature versus negative cities partly arises from the EEP studies suggesting that subjects tend to become mentally and physically restored in nature faster or more fully than in urban settings, or, conversely, urban settings appear to cause various negative effects, including stress. However, this polarization is problematic because nature and cities exist for a "different purpose" in our mind. Nature is "meant to" be serene and without people, whereas cities are "meant to" be vibrant, with people. Comparing a place we understand to be for recreation, exercise, or introspection to a place of social interactions, rules, and burdens may be a false equivalent to start with. My literature review identified that stressed individuals found nature more beautiful and restorative than urban environment, whereas for the less stressed, this correlation became statistically unclear.[48] This indicates that aesthetic appeal links to the inner state of the subject. We are not always stressed; for example, on a city holiday it appears quite possible to enjoy the urban aesthetics.

In 1979, Ulrich focused on commercial and industrial areas as a representation of "city," whereas my literature review found that "city" can mean very different parts of it. My concern is that studies about cities may be biased if we understand places of utilitarian, bulk commercial, vehicular, or storage purposes as more quintessentially urban than places where aesthetic considerations are more pronounced or positive, such as sacred or heritage areas, pedestrian streets, or upmarket shopping areas. There are also other issues that are currently not discussed in the EEP field. For example, can a city heal us from nature in some instances, as when we seek shelter from miserable weather or dark and cold winter season? Do rural and urban residents see cities in a different aesthetic light, and how does that light change, depending on subjective circumstances, such as mental and emotional state, expectations, and so on?

Based on my review, I suggest that cities are perceptually rich environs with a wide scale of positive and negative aesthetics. Reducing an environment to a two-dimensional static image appears to disproportionately disadvantage cities because of the convention of viewing nature as art or scenic imagery, whereas the positive experience of cities appears to largely arise from multisensory aesthetic experience and place attachment, including memories, sense of history, and social connections. Another angle that disadvantages cities is the EEP field's search for restorative environments, focusing on recreation at the expense of other areas in life. Cities are experienced in a multitude of other positive ways, such as thrilling, explorative, productive, and even ironic, through work/study/services. For example, a social media group, "Perth aesthetics", in Australia has 6,300 members whose daily online photos of Perth, often induced with nostalgia and humor, explore the aesthetics of ugliness, such as the gaudy signage or bland or incoherent strip malls criticized by Berleant.[49]

5. Concluding comments

Is it accurate to say that cities are less aesthetically appealing or less restorative than nature? My review indicates the answer depends upon a number of variables. Image-based and in-situ studies appear to generate different, even

conflicting, results, questioning the usability of image-based methods in studying multisensory, temporal, and spatial experience. Focusing on biology- or evolution-based explanations for environmental preference flattens the aesthetics of cities.

It is conceivable that some universal environmental preferences can exist, given our shared biological needs. But considering an example of eating reveals how nuanced our responses to biological needs can be. We all must eat, but what one considers the best form of nutrition depends significantly on personal, cultural, socio-economic, and aesthetic reasons. For example, eating insects may be natural to one person but utterly repulsive to another. Diets are an area, like the EEP field, where discussion revolves around the most natural or beneficial choices. Yet, diet choices such as the "natural" paleo diet are far from settled and hotly debated among experts and laypeople.[50]

I do not dispute the importance of urban greenery but wish to point out that if nature's benefits and cities' harms are taken as a juxtaposition, this may result in unintended consequences: 1) negative labelling of cities may lead to urban sprawl and rejecting higher-density planning, with negative impacts on nature; 2) reliance on biology- and evolution-based explanations renders our responses to different environments largely automatic, leaving little space for discussion on any other viewpoints; and 3) if we categorically understand nature beneficial and cities harmful, we are less inclined to analyze qualitative differences between different kinds of nature and urban environments.[51] Such consequences are sure to mislead and impoverish the otherwise rich and diverse experiences of urban environments.[52]

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End Notes

[1] For architecture and placemaking, see Maria Popczyk, "The aesthetics of the city-image," *Argument Biannual Philosophical Journal*, (2015), Vol 5, No 2, <https://philarchive.org/archive/POPTAO-5>, and Project for Public Spaces, "What is Placemaking," <https://www.pps.org/article/what-is-placemaking>. For sociology, see Michael Borer, "Being in the City: The Sociology of Urban Experiences," *Sociology Compass*, (2013), Vol. 7, Issue 11. For consumer studies, see Rob Shields (ed.), *Lifestyle Shopping. The Subject of Consumption*, (Routledge, e-book, 2004). For everyday and environmental aesthetics, see Yuriko Saito, "Aesthetics of the Everyday," *The Stanford Encyclopedia of Philosophy* (Winter 2015 Edition, ed. Edward N. Zalta), <https://plato.stanford.edu/archives/win2015/entries/aesthetics-of-everyday/>, and Arnold Berleant, *Living in the Landscape. Toward an Aesthetic of Environment* (Lawrence, KS: The University Press of Kansas, 1997), pp. 64-81.

[2] Roger Ulrich et al., "Stress Recovery During Exposure to Natural and Urban Environments," *Journal of Environmental Psychology*, Vol 11, Abstract: "120 subjects first viewed a stressful movie, and then were exposed to color/sound videotapes of one of six different natural and urban settings. Data concerning stress recovery during the environmental presentations were obtained from self-ratings of affective states and... physiological measures: heart period, muscle tension, skin conductance and pulse transit time."

[3] For example, a typical method is to cross-map statistics between crime rates or health records and green spaces in cities.

[4] Urban green spaces and health," WHO, (Copenhagen: WHO Regional Office for Europe, 2016),

http://www.euro.who.int/_data/assets/pdf_file/0005/321971/Urban-green-spaces-and-health-review-evidence.pdf?ua=1. I note that Arnold Berleant, Allen Carlson, and Pauline von Bonsdorff, among others, have discussed how nature is difficult to define, because untouched environments hardly exist and cities are always subject to and affect nature's processes, including weather and seasons, and are built of materials extracted from nature. See, for example, Berleant & Carlson (ed.), *The Aesthetics of Human Environment* (Peterborough: Broadview Press, 2007). For succinct expression and following the convention in the EEP field, in this paper 'nature' means green vegetation and water elements unless otherwise expressed.

[5] Edward O. Wilson, *Biophilia* (Cambridge: Harvard University Press, 1984); Bjørn Grinde & Grete Grindal Patil, "Biophilia: Does Visual Contact with Nature Impact on Health and Well-Being?" *International Journal of Environmental Research and Public Health* (2009), Vol 6, No 9, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2760412/>; and Stephen Kellert and Edward O. Wilson (ed.), *The Biophilia Hypothesis*, (Washington D.C.: Island Press, 1993).

[6] Leo Benedictus, "Sick cities: why urban living can be bad for your mental health," *The Guardian*, 25 February 2014, <https://www.theguardian.com/cities/2014/feb/25/city-stress-mental-health-rural-kind>

[7] This argument is not new. For example, Ebenezer Howard's Garden City movement (1898) aimed at creating safer, healthier and 'less sinful' environments in nature-surrounded towns.

[8] WHO (2016).

[9] Roger Ulrich has studied the effects of nature in stress reduction since the 1970s. A list of his studies is available at ResearchGate, https://www.researchgate.net/profile/Roger_Ulrich4/publications.

[10] ABTA (Association of British Travel Agents), "City breaks continued to be the nation's [the UK] favorite holiday type in 2017, with over half the population having taken one," *ABTA Travel Trends Report 2018*, 4, https://abta.com/assets/uploads/general/ABTA_Travel_Trends_Report_2018.pdf; and Michael Collyer, "The world's urban population is growing – so how can cities plan for migrants?" *The Conversation*, 2 November 2015, <https://theconversation.com/the-worlds-urban-population-is-growing-so-how-can-cities-plan-for-migrants-49931>

[11] Allen Carlson, "Environmental Aesthetics," *The Stanford Encyclopedia of Philosophy* (Summer 2016 Edition, ed. Edward N. Zalta), <https://plato.stanford.edu/archives/sum2016/entries/environmental-aesthetics/>, section 3.2.

[12] Allen Carlson, "Formal Qualities in the Natural Environment," *The Journal of Aesthetic Education* (1979), Vol 13, No 3, 100-106; and Berleant (1997), pp. 12-15.

[13] Marta Tafalla, "From Allen Carlson to Richard Long: The Art-Based Appreciation of Nature," *Proceedings of the European Society for Aesthetics*, 2010, Vol 2, pp. 491-504; and Ira Newman, "Reflections on Allen Carlson's Aesthetics and the Environment," *Canadian Aesthetics Journal*, 2001, Vol 6, https://www.uqtr.ca/AE/Vol_6/Carlson/newman.html

[14] Carlson (1979), pp. 100-106.

[15] Carlson (2016), section 4.2; and Kellert & Wilson (1993).

[16] Carlson (1979), pp. 106.

[17] Berleant (1997), pp. 12-15.

[18] Arnold Berleant, *Sensibility and Sense* (Imprint Academic, 2010), p. 29.

[19] Berleant (1997), pp. 64-74.

[20] Yuriko Saito, *Everyday Aesthetics* (Oxford: Oxford University Press, 2013), pp. 119-124.

[21] Saito (2013), pp. 234-238.

[22] Roger Ulrich, "View Through a Window May Influence Recovery from Surgery" (1984), *Science*, 224(4647), pp. 420-421.

[23] For example, "Sensation seeking and reactions to nature settings"(1993) (a study about reactions to nature paintings); "Stress Recovery During Exposure to Natural and Urban Environments" (1991) (a study about reactions to videos containing nature or urban landscapes); "Effects of exposure to nature and abstract pictures on patients recovery from heart surgery" (1993); "The View from the Road: Implications for Stress Recovery and Immunization" (1998); "Artificial window view of nature" (2005); and "Anger and Stress The Role of Landscape Posters in an Office Setting" (2008). Available at ResearchGate, https://www.researchgate.net/profile/Roger_Ulrich4.

[24] Roger Ulrich, "Visual landscapes and psychological wellbeing," *Landscape Research* (1979), Vol 4, No 1, 17-23, quote p. 17.

[25] Ana Karinna Hidalgo, "Biophilic Design, Restorative Environments and Well-Being," *Proceedings of the Colors of Care: The 9th International Conference on Design & Emotion* (Bogotá: Ediciones Favourite Uniandes, 2014, ed. J. Salamanca et al.).

[26] In-situ studies include interviews within or following a visit to the subject environment, mixed-method studies, and literature reviews that contain in-situ studies. Image-based studies comprise studies where subjects viewed photos or videos of pre-selected places. Studies were sourced in July 2018 via ReseachGate.

[27] The studies included in the literature review are listed in Attachment 1. References in brackets in this paper refer to the listed studies.

[28] Throughout their work, Yuriko Saito and Pauline von Bonsdorff have discussed the aging of materials and changes of seasons as salient aspects of aesthetic experience of built environment.

[29] For example, Dmitri Karmanov & Ronald Hamel, "Assessing the restorative potential of contemporary urban environment(s): Beyond the nature versus urban dichotomy," *Landscape and Urban Planning* (2008), No 86, p. 118: 'By filming early in the morning we managed to eliminate practically all visible human activity. ... the presence of cars or people at both the urban and natural locations might adversely influence the perceived qualities of the environments.'

[30] Typically, less than a dozen photos were provided in each research paper out of forty to fifty studied images; and in the case of video viewings, only a few still-captures were provided.

[31] Jane Jacobs, *The Death and Life of Great American Cities* (US: Vintage Books, 1961/1992). Jan Gehl has spoken extensively on this topic since the 1970s, see for example *Life Between Buildings* (Denmark: Van Nostrand Reinhold, 1980/1987).

Project for Public Places (PPS), <https://www.pps.org/article/grplacefeat>, accessed September 12, 2018. "PPS has found that [for a public place] to be successful, they generally share the following four qualities: they are accessible; people are engaged in activities there; the space is comfortable and has a good image; and finally, it is a sociable place." PPS is a non-profit, US organization but promotes placemaking internationally.

[32] Hidalgo (2014), p. 541.

[33] Project for Public Places, *Ten Strategies for Transforming Cities and Public Spaces Through Placemaking*, 29 April 2014, <https://www.pps.org/article/ten-strategies-for-transforming-cities-through-placemaking-public-spaces>, accessed 12 September 2018.

[34] Kazuaki Nagata, "Trendy Harajuku draws crowds," *Japan Times*, 1 February 2011. <https://www.japantimes.co.jp/news/2011/02/01/reference/trendy-harajuku-draws-crowds/#.W-EB1ZMzY2w>

[35] In practice, separating nature and urban environments is impossible, as cities are situated in and a part of nature's processes and elements. It can be argued that deserts, unlike parking lots, are also natural and hence, aesthetically appealing. However, here I discuss 'nature' as greenery and water, as is common in the EEP field.

[36] Examples of urban sites that draw visitors but lack greenery are for example urban ruins; however, in my view this fascination arises from the thrill of horror, abnormality of abandonment, discussed in section 3.1.

[37] Western cities commonly have policies for the acceptable vegetation height and density, in particular, near vehicular and pedestrian roads. People tend to find screened places threatening, fearing someone is hiding behind the screening. Nasar & Jones, "Landscapes of Fear and Stress," *Environment and Behaviour*, Vol 29, No 3, pp. 291-323.

[38] Roger Nash, *Wilderness and the American Mind* (US: Yale University Press, 1967/2014).

[39] For example, Virgil's *Eclogues* (44-38 BCE), poems about Roman pastoral landscapes; I thank Pauline von Bonsdorff for this notion. Later, Pieter Bruegel the Elder (ca. 1525/1530 - 1569) set the example for painting town scenes with pastoral surroundings.

[40] Meaning signs of the past, such as heritage areas, and personal history and memories.

[41] Arnold Berleant, *The Aesthetics of Environment* (Philadelphia: Temple University Press, 1992), pp. 86, 93-98.

[42] Dean Blake, "Roselands' \$90m facelift sees 70 new retailers," *Franchise Business*, 27 August 2018, [http://www.franchisebusiness.com.au/news/roselands-\\$90m-facelift-sees-70-new-retailers](http://www.franchisebusiness.com.au/news/roselands-$90m-facelift-sees-70-new-retailers); and "Mexico City raises green awareness with vertical gardens," Reuters, 15 August 2016, <https://www.reuters.com/video/2016/08/15/mexico-city-raises-green-awareness-with?videoId=369577981>. I note that both examples contain green elements – my intention is not to dispute the aesthetic appeal of greenery, but to draw attention to also other important environmental aesthetic qualities.

[43] Berleant (1997), pp. 66-67.

[44] Florian Heilmeyer, "Architects in commercial estates," *The Style Guide*, 26 June 2017, <https://www.stylepark.com/en/news/architecture-commercial-zone-supermarket-mcdonalds-burger-restaurant-electronics-consumer-culture>; and Katherine Schwab, "Architects' Long, Love/Hate Relationship With The Mall," *The Fast Company*, 30 September 2016, <https://www.fastcompany.com/3064173/architects-long-love-hate-relationship-with-the-mall>. See also Rob Shields, (2004), 3-4.

[45] Anna Kortelainen, *Päivä naisten paratiisissa*, (Finland: WSOY, 2005), Introduction, my translation.

[46] Ram Bachan Singh, "Cities and parks in ancient India," *Ekistics* (1976), Vol. 42, No. 253, pp. 372-376; Elizabeth Macaulay-Lewis, "Greek and Roman Gardens," *Oxford Bibliographies*, 2 April 2015, <http://www.oxfordbibliographies.com/view/document/obo-9780195389661/obo-9780195389661-0134.xml>

[47] L. Peter MacDonagh, "History of Street Trees in Paris: The Golden Age of the Boulevard," Smart Cities Dive, (undated), <https://www.smartcitiesdive.com/ex/sustainablecitiescollective/history-street-trees-pariscity-making-and-golden-age-boulevard/149376/>; Galen Cranz, "Urban Parks of the Past and Future," Project for Public Spaces, 31 December 2008, <https://www.pps.org/article/futureparks>; and Dean Kirby, "Derby Arboretum: How Britain's first public park inspired open spaces around the

world," *The Independent*, 30 August 2015, <https://www.independent.co.uk/environment/nature/derby-arboretum-how-britains-first-public-park-inspired-open-spaces-around-the-world-10478207.html>

[48] Agnes van den Berg et al, "Environmental preference and restoration: (How) are they related?" *Journal of Environmental Psychology* (2003), Vol 23, p.143.

[49] 'Perth aesthetics' site on Facebook, <https://www.facebook.com/groups/145648992726100/>

[50] Sandy Smith, "Nutritionists warn of dangers in Paleo dieting," *Sydney Morning Herald*, 6 August 2014, <https://www.smh.com.au/lifestyle/health-and-wellness/nutritionists-warn-of-dangers-in-paleo-dieting-20140805-100iup.html>

[51] Criticism towards urban or high-density environments has a long history. For example, Steven Conn has researched the deep-seated anti-urbanism in the US in *Americans Against the City. Anti-Urbanism in the Twentieth Century*, (US: Oxford University Press, 2014).

[52] I thank the peer reviewers for their insightful comments that I have incorporated into this paper.

Study method:in-situ, mixed method or literature review			
By	Title	Published	Summary of results
Berto, Rita et al.	How does Psychological Restoration Work in Children? An Exploratory Study	<i>Journal of Child & Adolescent Behaviour</i> , (2015) Vol 3, No 3	Of three options, alpine woods was the most preferred environment, followed by mindful silence (in unspecified physical location) and school playground (the everyday recess environment).
Cheng, Chingwen et al.	Exploring Stakeholders' Perceptions of Urban Growth Scenarios for Metropolitan Boston (USA): The Relationship Between Urban Trees and Perceived Density	<i>Cities and the Environment (CATE)</i> , (2017) Vol. 10, Issue 1, Article 7	A mixed method study consisting of workshops, group interviews and photo survey found that the increase in tree canopy appears to ameliorate the low ratings of high-rise buildings in urban development; and the use of participatory planning process where stakeholders are provided with information on sustainability is more likely to produce amenable attitude towards higher density.
Hartig, Terry & Staats, Henk	Linking preference for environments with their restorative quality	Chapter 19, <i>Landscape Planning: Aspects of Integration, Education and Application</i> , (ed. Bärbel Tress et al) (Netherlands: Springer, 2006)	Following a stressful experience, subjects had a more positive attitude towards walking one hour in a forest compared to walking in a familiar city centre; the effect is stronger in more fatigued subjects.
Korpela, Kalevi	Are Favourite Places Restorative Environments?	<i>Healthy Environments EDRA</i> 22:1991, pp. 371-381	Finnish students' (17-18yr) favorite places were in order from most to least popular: private home, restaurant/downtown, nature, sports facility, club, and other; favorite place assists in self-coherence and sense of

			identity, not only attention-recovery
Lorenzo, Esther et al.	Preference, restorativeness and perceived environmental quality of small urban spaces	<i>Psycology: Revista Bilingüe de Psicología Ambiental / Bilingual Journal of Envi</i>	