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Biophilic Cities for an Urban Century

Why nature is essential for
the success of cities

Robert McDonald
Tim Beatley

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Rob McDonald dedicates this book to his children and hopes that the book can contribute, in some small way, to making the urban world they will inherit a little bit more verdant and soulful.

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CHAPTER 1

The Urban Century

Abstract This century could rightly be called the urban century, with 2.4 billion more people expected in cities by 2050. This chapter presents the major choice facing planners: whether we want nature to play a central role in our urban future. We briefly present the central argument of this book that, paradoxically, cities need nature more than ever. Cities are the perfect forum for interaction, and it is this interaction that makes cities successful. Yet living in cities also carries with it an urban psychological penalty, as interacting with hundreds or thousands of people a day creates stress and mental illness. We believe that nature in cities can allow humanity to have all the benefits of a connected, urban life while alleviating the urban psychological penalty.

Keywords Climate change • Mental health • Natural features • New Urban Agenda • Urbanization • Urban growth

HUNTER'S POINT

Hunter's Point existence is an accident of geography. Perched near the confluence of Newtown Creek and the East River, the peninsula became a dumping ground for waste from digging tunnels into Manhattan. The infill then became a bustling industrial site, with factories served by trucks and cargo ships. However, by the 1990s the economy of New York City had changed, and the site was economically abandoned and isolated.

Governor Mario Cuomo designated the land a future public park, but left the area fenced off, a vacant industrial wasteland. In 2012, Mayor Michael Bloomberg returned the focus to the site, and New York City faced a choice of what Hunter's Point should become (Doumar 2018; Davidson 2018).

New York City desperately needs new housing, as its population swells from 8.2 million in 2010 to a projected 9.0 million people in 2040 (The City of New York 2013). But the city is also trying to remake its shoreline, increasing the parkland for residents and reconnecting the city visually with the East River. After the massive flooding during Hurricane Sandy in October 2012, having a use for the site which was resilient to flooding became an essential focus of planning (Doumar 2018). Climate change will only worsen the risks of coastal flooding, as sea levels rise and rainstorms potentially get more intense.

In the end, New York City chose to achieve a little bit of both objectives: setting aside space for 5000 apartments while also adopting a plan to recreate a natural shoreline along Hunter's Point. Now, instead of concrete walls holding back the East River, marshes greet the daily tide waters. A little farther back from the water, a few trees and a grassy field offer a place to recreate and enjoy the stunning views of Manhattan's skyline. Curving concrete walkways allow for walks along the point, as well as future access by neighborhood residents, whose new building is slated for the most uphill part of the site (Davidson 2018). The redevelopment of Hunter's Point is still a work in progress, but the project is a good example that an expanded New York City, with close to a million new residents, need not be a gray, lifeless place. Instead, another city is possible, one in which nature is increasingly integrated into the fabric of a natureful, vibrant urban life (Fig. 1.1).

The choice that New York City faced—of how to develop while maintaining space for nature—is one that tens of thousands of cities and towns will face. This century will be the urban century, and we will witness the greatest migration in human history. By 2050, there will be 2.4 billion more people in cities. Humanity is doing the equivalent of building an urban area the size of New York City every nine weeks, over and over again (UNPD 2018). Will these cities be dull, lifeless places, or will they be lively, green ones? What use is nature, anyway, in the urban century?



Fig. 1.1 Hunter's Point South Park, New York, NY. (Photo credit: Hahn Darlin (CC BY 2.0))

LIFE IN THE URBAN CENTURY

Urban growth is a global mega-trend, one that will reshape many facets of human society. The trend will be most acutely felt in places like China (240 million new urbanites by 2050), India (180 million), and Nigeria (70 million) (UNPD 2018). But even in developed economies like the United States and the European Union, continued migration into large urban agglomerations will drive urban area expansion. While some declining industrial cities are losing population, the trend in most cities will be toward growth. *Homo sapiens* is already a majority urban species, and by 2050, it is projected that two out of every three humans will live in cities (UNPD 2018). Urban growth is the reality to which the fields of landscape architecture and sustainability science must respond if they are to remain relevant.

Some of the eye-popping increases in urban population are occurring simply because overall human population is increasing from 7.4 billion in 2015 to a forecasted 9.8 billion in 2050 (UNPD 2018). But urban population growth is also occurring because the fraction of people in cities is rising. The complex factors responsible for increasing the fraction of people in cities are detailed in Chap. 2. For now, it is enough to say that urban population growth seems a virtual certainty.

All these new urban dwellers will need some place to live. The most commonly cited forecast suggests that there may be 1.2 million km² of new urban area by 2030 (Seto et al. 2012). Humanity will, in other words, develop an area that, if you push it all together, could cover a country the size of South Africa. There is considerable uncertainty in forecasting future urban area (McDonald et al. 2018), and newer studies suggest a lower total area may be urbanized (Zhou et al. 2019). Perhaps most importantly, nothing in these forecasts is set in stone. Human choices about urban form and density will determine how much of our planet will be developed for urban land uses (Fig. 1.2).

Urban expansion will be greatest at the edges of existing metropolitan areas, on sites with flat land and close to existing transportation infrastructure like roads, rail lines, and ports. Historically, many cities have been located along coastlines and rivers, and most new urban growth will also occur in these locations. This matters for biodiversity because such natural habitat in these locations has high levels of productivity and biodiversity. Designing smartly the new urban area of the twenty-first century thus matters not just to human well-being but also to the preservation of biodiversity.

It is easy when discussing the urban century to imagine examples like New York City, large urban agglomerations housing tens of millions of people. But historical data and future forecasts suggest that urban population will be divided among many cities and towns of various sizes. Currently, almost half (49%) of urban dwellers are in cities of less than 500,000 people, a fraction that will remain roughly the same over the next few decades (UNPD 2018). Thus, landscape architecture and sustainability science need to define the role of nature in the urban century, not just for a handful of megacities but for thousands of smaller settlements. Smaller settlements face unique challenges, such as fewer economic resources and technical capacity, but also some advantages, including the ability to plan at smaller scales and lower population densities.