



Nature Conservation Planning Approach in The Urban Epoch

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This study explores the nature conservation planning in the urban context, an emerging issue in the process of striking a balance between natural heritage conservation and urbanization demands, by focusing on two cases: Breda City Plan in the Netherlands and Beykoz Riva Integrated Environmental Protection and Development Plan. Breda City Plan is analyzed as a reflection of a deep-rooted tradition that is sensitive to nature while Riva Beykoz Plan is analyzed as a unique example within Turkey in that regard. These cases see the development of an integrated rainwater management system by the enhancement of existing ecosystems and green urban spaces and by their connection to the adjacent protected natural areas. This study explores whether the recent implementations of nature conservation in Breda and Beykoz Riva meet IUCN guidelines for urban areas. These cases are analyzed with the IUCN Urban Protected Area Guidelines which adopts current concept and methodology of nature conservation planning in urban areas. As a result of their analysis, it is observed that they both meet the guideline criteria.

Keywords: nature conservation, urban protected areas, planning history

Introduction

According to the projections of 2050, it is evident that the world will be increasingly urbanized¹. This emerging urbanization trend has already started to alter the approaches to nature conservation and will continue to do so. Current approaches intend not only to conserve natural areas but also to sustain natural heritage in urban settings. Natural areas meet social needs and increase ecological awareness in urban societies. Thus, nature is an essential aspect of the contemporary city structure. To that regard, nature conservation planning serves as a substructure for urban planning.

An initial attempt at integrating natural areas in the urban spatial organization was made at the Third World Parks Congress in 1982². The subject of the conference was the shift in understanding of natural areas which were no longer “set aside” but casted as “components of sustainable development” in the urban pattern³. Meanwhile, the buffer zone concept was developed into a broader systematic technique called impact zone. This was followed by a zone of interaction and multi-objective land allocations. When it came to the 2000’s, no-zoning approaches started to emerge. Today, there are several models such as no-take boundary design or morphological spatial pattern analysis that consider natural areas in relation to their surroundings, especially in urban areas⁴.

This study aims to provide a literature review on the history of nature conservation planning in an urban context, exploring the issue together with international declarations and recommendations that have determined the tendencies of their time, leading to shifts in understanding. After structuring theoretical background, selected case studies will be assessed according to the Urban Protected Areas Guidelines, one of the recent nature conservation guideline focusing on urban areas. These case studies are Breda City Plan, Breda Netherlands and Beykoz, Riva Valley Integrated Environmental Protection and Development Plan, Istanbul Turkey. By providing an analysis of these cases, this study intends to find out whether the contemporary nature conservation planning implementations are compatible with the IUCN Urban Protected Area Guidelines.

The concept and methodology of nature conservation planning have been evolved over centuries due to the transformation of the attitude with regard to the preservation and sustainment of natural heritage. From the Stockholm Declaration⁵ to the Rio Declaration⁶ nature conservation became a form of global partnership, gaining national, regional and international recognition. As cities increasingly grew in time and the pressure of urbanization on natural areas increased, sustaining natural areas in the urban fabric became a key issue. As a result, International Union for Conservation of Nature adopted the current notion and methodology of nature conservation planning in the Urban Protected Area Guidelines in 2014⁷.

Consequently, the classical individualistic approach that was adopted earlier left its place to a more inclusive one. In the eighteenth century, the aim of nature conservation planning was to preserve the natural resources and protect valuable landscapes. In the nineteenth century, the focus was to protect the physical environment, sustaining the



variety of wildlife in natural areas and monumentalizing the sites with its scenic wonders. In the twentieth century, nature conservation planning became a networking discipline. In that regard, preventing fragmentation of natural sites was prioritized in the course of comprehensive and inclusive planning attempts. The following part of the study explores how the history of nature conservation planning in urban areas developed.

Alterations in the Process of Nature Conservation Planning in Urban Areas

Between 3 and 5 thousand years ago, a sophisticated urban culture emerged in Anatolia and Mesopotamia with the development of ancient cities⁸. Those cities provided the basis for systematic initiatives to be taken in urban environments. Management of productive land, irrigation, and understanding of solar system were developed and systematized, paving the way for the establishment of analytic and comprehensive relations between human and nature. As a result, natural areas were either removed from the city centers or kept at the outskirts of cities. Until the twenty-first century, cities were assumed to present a stark contrast with nature or the natural⁹. It is common knowledge that having being cultivated and invented by the hand of humans, cities were understood to stand in opposition to the wilderness. They were often described as separate from what might be considered the “natural world”.

However, today’s understanding of urban culture demonstrates a difference from the past by focusing on the notion of urban socio-nature. Socio-nature does not contrast the concepts of nature and humans but unites them by referring to them as a single concept¹⁰. In that regard, according to socio-nature, there is nothing inherently unnatural about cities. Cities are man-made environments that are integral to a broader ecological system. Hence, the previously presumed dichotomy between city and nature is rejected. For a long period, urban studies have ignored the physical nature of cities, emphasizing the social aspects rather than the ecological. However, cities can also be defined as a prism of social, economic, ecologic and cultural powers.

In the nineteenth century, there was an explicit urban park movement. Landscape architects such as Frederick Law Olmsted have left a permanent legacy in cities as a part of this movement¹¹. Urban parks used to be large open green areas that were located at the edge of a city, following the ideal of the pastoral landscape with buildings subordinate to the overall landscape. These large landscaped parks were supposed to mimic nature¹². However, they were not supposed to be as wild as nature. Urban parks were required to be in between the wildness of pure nature and civilized nature of a city. Since that movement emerged, urban parks such as the Central Park have been developed not only for their social and economic opportunities but also their aesthetic appeal. Prosperous cities are aware of the fact that nature is an essential element in creating the high-quality environment.

In the mid-twentieth century, environmental groups tackled with series of issues on nature, city and social powers. These attempts were aimed to raise public awareness about environmental degradation. With public support, they tried to secure the conservation of natural resources, preservation of wilderness areas and biodiversity in urban environments. This modern environmental movement was triggered by local, national and international non-governmental organizations. Beginning with a concern about air and water pollution, this movement grew in time to address other concerns pertaining to all landscapes and human activities. As a part of this movement, Abel Wolman introduced the notion of the metabolism of cities¹³. According to Wolman, the city is accepted as an ecological system with a quantifiable amount of environmental inputs such as energy and water and outputs such as heat, pollution, garbage, and noise. Maintaining a balance between inputs and outputs constitutes a self-sustained city.

In the late twentieth century, the context of sustainability in cities was expanded with the Stockholm Declaration and established respectively with the World Charter for Nature¹⁴, the Brundtland Report¹⁵ following the Rio Declaration¹⁶. The Brundtland Report emphasizes the necessity of combining human actions, ambitions, needs, and attempts with the environment in order to achieve sustainability in the long term¹⁷. With the Rio Declaration, sustainable cities became a developing topic, especially for planning discipline. In the same declaration, environmental protection was stated as an internal part of the development processes in the cities. The declaration addressed the issue of harmony with nature which is crucial for a healthy and productive life in urban environments. Herbert Girardet defines the sustainable city as “a city that works so well that all its citizens can meet their own needs without endangering the well-being of the natural world or the living conditions of other people, now or in the future”¹⁸. According to Girardet’s definition, the sustainable city requires the implementation of environmental-friendly standards, management objectives, and priorities equally for all the citizens.

These discussions on sustainability have raised the issues of environmental quality in urban areas. Questions of environmental quality immediately bring up the issues about social exclusion as the worst environmental conditions are imposed on the most marginal-lower-income urban areas. Disasters are also considered as a matter of social exclusion. They affect poor cities or poor parts of cities more than affluent ones. Due to the existence of economic inequity and social justice, hazards easily turn into disasters. At the beginning of the twenty-first century, Lawrence J. Vale and Thomas J. Campanella used the term “resilience” to determine a city’s ability to survive a



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disaster, underlining four stages for recovery. These stages are an emergency response, restoration, replacement and reconstruction and development reconstruction¹⁹.

All these distinct yet connected ideas about nature conservation underline the importance of the existence and sustainability of natural areas within cities. Today, natural areas in the urban fabric are utilized to sustain, resist, and contribute to the creation of socially inclusive and healthier cities. Best management practices in nature conservation increase the quality of life in cities.

Though the conservation and protection of natural areas in cities gained importance, threats against nature did not subside but showed an increase. As a result, United Nations commissioned International Union for Conservation of Nature (IUCN) as a permanent observer in 1999²⁰. Today, IUCN has the most significant network and database for nature conservation. In 2003, United Nations Protected Sites List, which was first initiated in 1962, was officially established by IUCN and UNEP-WCMC²¹. Together with the list, protected sites categorization and management strategies are decided. With this momentum in 2014, IUCN remarked current concept and methodology of nature conservation in the Urban Protected Area Guidelines (UPAG)²². Even though the guidelines refer to urban protected areas, it draws the framework of management and enhancement of natural areas in an urban environment.

According to IUCN definition, urban protected areas are natural areas situated in or at the edge of large population centers²³. They do not include conventional urban parks with lawns, flowerbeds and sports fields²⁴. They are wilder forms of nature in the urban fabric²⁵, such as groves. There are numerous actors in charge of these areas including government, decision-makers, media, opinion leaders, and critical educational and cultural institutions. Urban sprawl and intensification of urban development are external threats. These areas are affected by crime, vandalism, littering, dumping, and light / noised pollution and subject to urban edge effects as more frequent and severe fires or the introduction of invasive alien plant species.

PEOPLE
provide access for all
engender a local sense of ownership
take advantage of volunteers and support groups
communicate carefully and use a range of communication technologies
demonstrate, facilitate and promote good environmental behaviour
demonstrate, facilitate and promote the health benefits of contact with nature and of good eating habits
prevent littering
prevent and prosecute a crime against people and property.
reduce human-wildlife interaction and conflict
control poaching
control invasive species of animals and plants
INSTITUTIONS
cooperate with agencies that have shared or adjoining jurisdictions
cooperate with institutions that have complementary missions
cast a wide net of advocates and allies
cooperate with universities in training managers for urban protected areas
learn from others' experience with collaboration
IMPROVING URBAN PROTECTED AREAS
promote and defend urban protected areas
work to make urban protected areas national and global conservation priorities
create and expand urban protected areas
promote rules and organisational cultures that respect the differences between urban and more remote protected areas
recognise that political skills are critical to the success
seek funding from a wide range of sources
take advantage of international organisations and exchanges
improve urban protected areas through research and evaluation

Table 1: Principles are stated in the IUCN UPAG.²⁶

To sustain natural areas in cities, UPAG laid down certain principles. IUCN states that these principles are relevant to urban protected areas or any open green areas in or at the edge of large population centers²⁷. In Table 1, the



principles are grouped in four categories to simplify the complexity of UPAG. They include suggestions to increase social relations with natural areas, cooperation among institutions, improvement of urban protected areas as well as a recommendation for future implementations.

These principles constitute the main aspects of sustaining natural areas in an urban environment. In order to create natural conservation in city-scale high-populated areas, IUCN recommends a network planning approach to integrate natural areas into other land-uses to increase human contact with nature²⁸. Thus, natural and built areas need to become components of a whole system harmoniously. The UPAG remarks this concept and methodology by providing access to all, increasing awareness, promoting connections to natural areas and helping infusion nature into the built environment. In the scope of this study, these remarks of the UPAG is analyzed in two cases.

Nature Conservation Planning Approaches in Case Studies of Breda and Beykoz, Istanbul

Two different case studies have been selected to discuss UPAG principles. The first case is Breda City Plan in the Netherlands. The second one is the Beykoz Riva Integrated Environmental Protection and Development Plan in Istanbul, Turkey. The city of Breda has historic urban context with water presence^{29, 30, 31}. Riva also has a historic settlement pattern including agricultural and forest areas^{32, 33, 34, 35}. Both cases are at the edge of the water bodies and face a flood risk due to several rivers. The City of Breda and Beykoz have a similar population with 324,812 and 247.284 inhabitants respectively^{36,37}. These two-medium size post-industrial settlements are both under the pressure of rapid urban development and share an environmentalist stance.

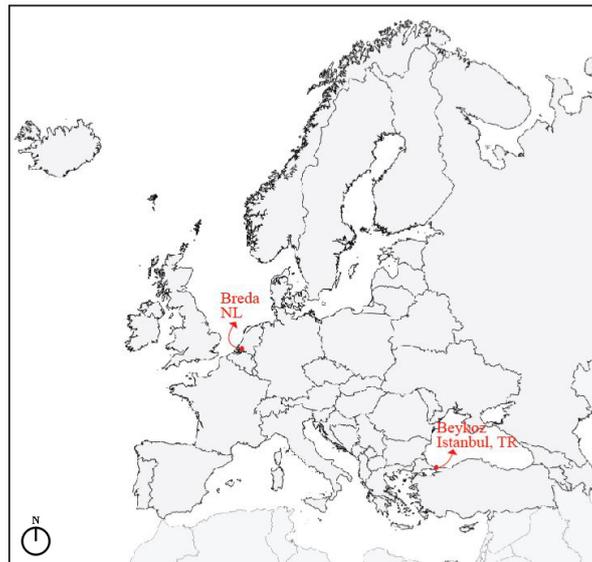


Figure 1. Location of Breda Netherlands and Beykoz Istanbul Turkey on the Europe Map

The city of Breda is located in the province of North Brabant in the southern part of the Netherlands. Breda has been pursuing sustainable urban development for thirty years in order to distinguish itself from its neighbors Rotterdam and Amsterdam³⁸. Implementations in Breda focuses on the combination of planning attractive green spaces with sustainable risk management for flooding. Urban development approaches in Breda have environmentally friendly and socially sensitive aspects. In that regard, the city establishes a forest plantation near to a local highway to compensate for carbon dioxide emission and to increase awareness about global climate change. Housing development projects (Chassé Park or Westerpark) prioritize the connection among nature, city, and agriculture. First, the green areas within the city are connected to one another, then this web of connection is tied to a larger project, called the Green Fingers, which includes a regional scale³⁹. Breda is also adjacent to the NP De Biesbosch which is protected nature reserve and the largest freshwater tidal area in Europe⁴⁰. The reason for analyzing Breda City Plan in the scope of the UPAG is to comprehend whether a traditionally successful nature-sensitive implementation will also adopt the principles.

The district of Beykoz is located in the north of the Anatolian side of the Bosphorus in the Istanbul metropolitan area. The Municipality of Beykoz is distressed by the regular flooding of Riva River. Therefore, the integrated protection and development of the Riva river and Riva valley in Beykoz are initiated by Beykoz Municipality in collaboration with a Dutch-based planning firm⁴¹ and local stakeholders. Within this framework, flood risk management and sustainable water strategy were developed together with the revitalization of the agricultural area. This project also includes the ecological and recreational development of the Riva river basin. In that regard, the construction of a new city marina, acceleration of urban development, and tourism industry are proposed. This



sustainable approach allows Beykoz to conserve its natural values and continue to be the green lung of Istanbul. This project site also includes a nature protection site (Polonezköy Nature Park) that is integrated to the development plan⁴². Beykoz Riva Integrated Environmental Protection and Development Plan is assessed according to UPAG in order to understand whether the guiding principles of UPAG support this one of the first implementations in Istanbul.

The assessment Breda and the Riva Beykoz urban plans according to IUCN's UPAG demonstrates that both implementations are in line with most of the principles (Table 2). In Breda City Plan, an existing green network of natural areas is enhanced to increase recreational activities in the urban context. The plan is carried out in cooperation with various institutions with the aim of developing an environment-friendly transportation system and creating economic opportunities. Dwellers were included in the planning and decision-making processes, and they continue to be a part of communications with the authorities for future processes.

The Riva Beykoz development plan also expands the use of public open spaces, and enhances the connection among populations, increasing access to social benefit. The development plan proposes solutions to the problem of canalization of water bodies, improving environmental quality for river basin and increasing agricultural production. It also emphasizes cultural heritage sites and increases awareness with regard to urban identity. Breda City Plan aims to improve biodiversity in an urban area and make it more durable together with green infrastructure implementation in the natural areas. It is a successful project carried out with a sensibility to protect nature in the urban context. In contrast, nature conservation has not become a key concept in urban planning in Turkey. Riva Beykoz development plan is one of the first attempts at creating an integrated environmental protection plan focusing on a river basin in an urban context. Even though these cases represent different backgrounds in terms of nature conservation, they both meet criteria of IUCN UPAG that adopt the current concept and methodology of nature conservation planning in urban areas.

Principles of the IUCN Urban Protected Areas Guidelines	Breda CP	Riva – Beykoz IEPDP
PEOPLE		
provide access for all	1	1
engender a local sense of ownership	1	1
take advantage of volunteers and support groups	1	1
communicate carefully and use a range of communication technologies	1	1
demonstrate, facilitate and promote good environmental behaviour	1	1
demonstrate, facilitate and promote the health benefits of contact with nature and of good eating habits	1	1
prevent littering	0	0
prevent and prosecute a crime against people and property.	1	1
reduce human-wildlife interaction and conflict	1	1
control poaching	1	1
control invasive species of animals and plants	0	0
INSTITUTIONS		
cooperate with agencies that have shared or adjoining jurisdictions	1	1
cooperate with institutions that have complementary missions	1	1
cast a wide net of advocates and allies	1	0
cooperate with universities in training managers for urban protected areas	0	0
learn from others' experience with collaboration	0	0
IMPROVING URBAN PROTECTED AREAS		
promote and defend urban protected areas	1	1
work to make urban protected areas national and global conservation priorities	1	0
create and expand urban protected areas	1	1
promote rules and organisational cultures that respect the differences between urban and more remote protected areas	1	1
recognise that political skills are critical to the success	1	1
seek funding from a wide range of sources	1	1
take advantage of international organisations and exchanges	0	0
improve urban protected areas through research and evaluation	1	1
	19	17

Table 2: IUCN UPAG Principles Evaluation for Breda City Plan and Riva Beykoz Integrated Environmental Protection and Development Plan, 1= exist, 0=unknown or not exist

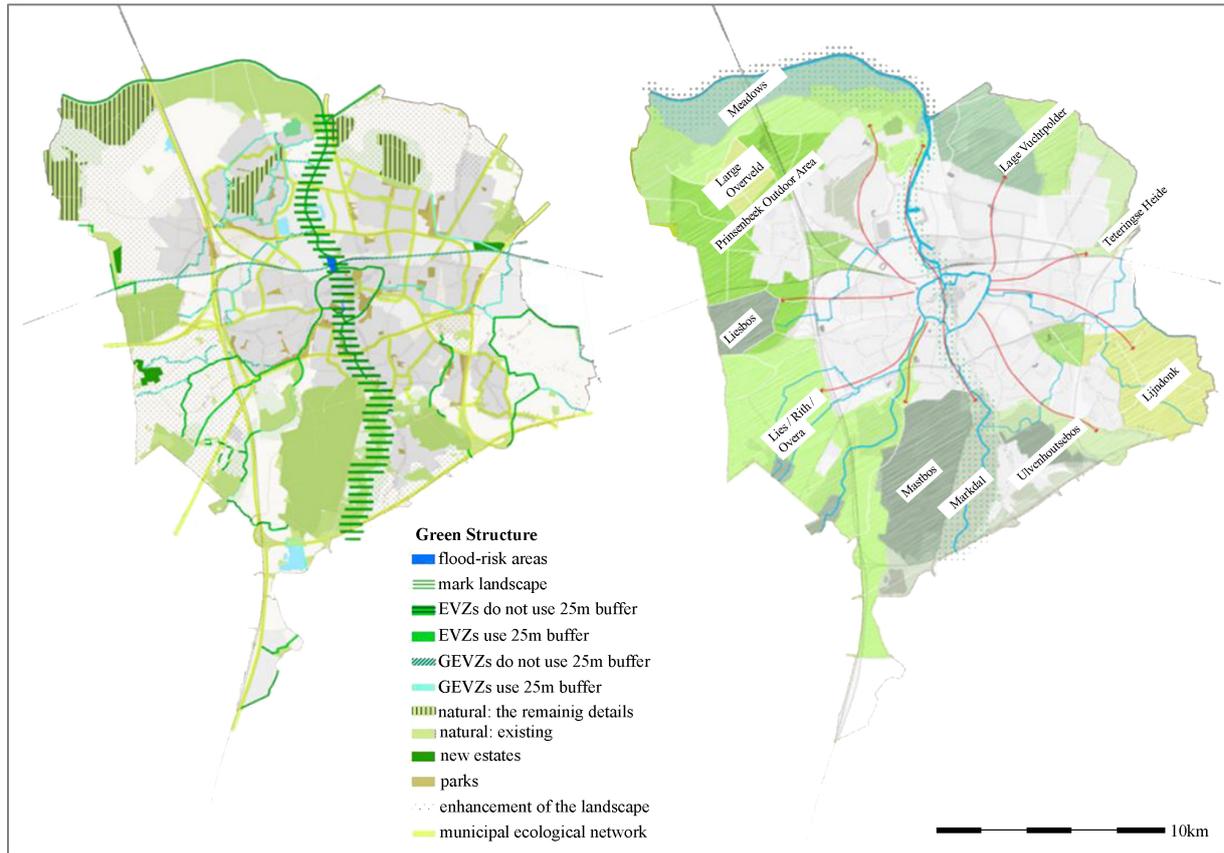


Figure 2. Breda Green Structure Plan (left) and Network Strategies (right) from Structuurvisie Breda 2030.

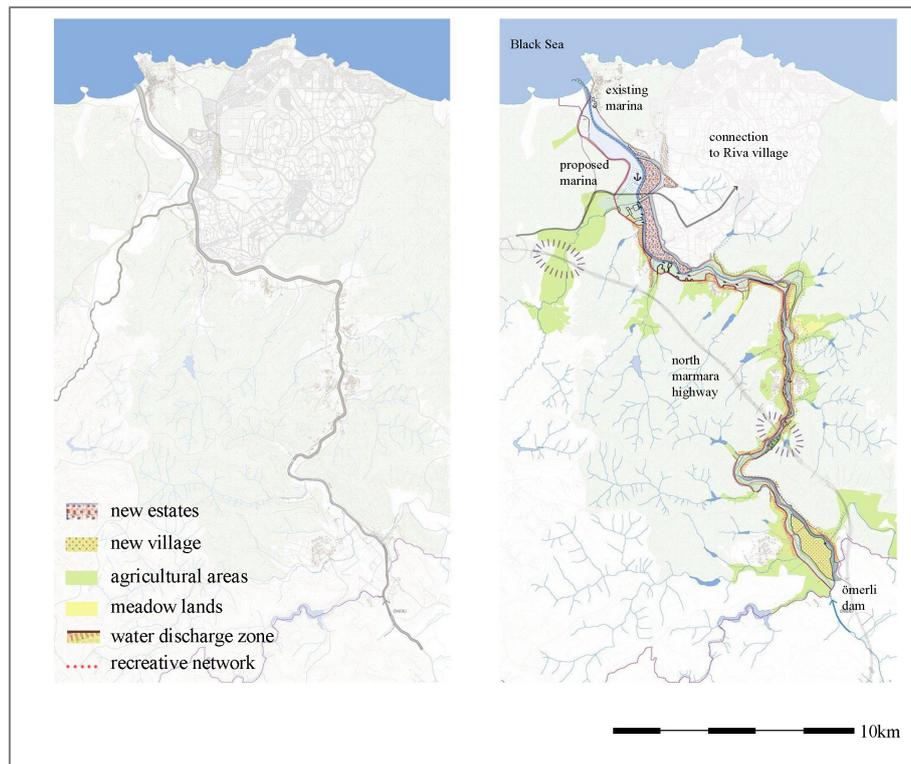


Figure 3. Canalization Project for Riva River (left) and Proposed Integrated Schematic Plan (right)



Conclusion

As cities continue to grow, nature retreats and people lose contact with nature in urban areas. Therefore, not only the protection of natural areas but also the creation of new spaces for the development of nature within the urban fabric attain crucial importance. The existence of nature in urban areas is vital for influencing, encouraging and assisting societies to conserve the integrity and diversity of nature. In addition, it ensures that any use of natural resources must be equitable and ecologically sustainable. Natural areas facilitate the connection between people and nature. Cities are where most people live, where wealth is concentrated and where communications and the media are centered. According to IUCN, political leaders are under pressure to hear what their electors have to say to them⁴³. In that regard, restoring the severed ties of urban people with nature might be possible if they are to demand from political leaders that nature conservation must be a priority.

“Earth will be protected only if urban people care about nature where they live”⁴⁴.

Considering the change in the approaches to nature conservation as the cases of Breda and Riva Beykoz demonstrate, it is possible to conclude that social needs of city dwellers can only be met and an ecological awareness among them can only be raised by enhancing the connection between nature and urban societies. As it is indicated by IUCN UPAG, today the emphasis is not only on protection of natural areas but also on the sustainment of natural heritage by increasing durability and improving life quality in urban settings. Therefore, conservation of nature is an important aspect of the contemporary city structure.

Disclosure Statement

No potential conflict of interest was reported by the author.

Notes on contributor(s)

Nuran Zeren Gulersoy is a professor in Istanbul Technical University, the Department of Urban and Regional Planning. Her primary areas of interest are urban planning, urban design, urban and nature conservation. She is the member of ICOMOS, Council Member of Europa Nostra and Secretary General of IPHS (International Planning History Society).

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Figure 1: Location of Breda Netherlands and Beykoz Istanbul Turkey on the Europe Map

Figure 2: *Structuurvisie Breda 2030* (Breda: Gemeente Breda, 2013), 80-86.

Figure 3: N+H+S Landscape Architecture, "Beykoz Riva Valley Integrated Environmental Protection and Development Plan" accessed May 15, 2018, <http://www.hnsland.nl/nl/projects/quickscan-beykoz-istanbul>

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