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AUTHORS: Gülden SANDAL ERZURUMLU,Nuriye Ebru YILDIZ,Baris KAHVECİ

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## **The Evaluation of Active Green Sites For Recreation: Bor Case**

**Glden SANDAL ERZURUMLU<sup>1\*</sup>, Nuriye Ebru YILDIZ<sup>2</sup>, Barış KAHVECİ<sup>3</sup>**

<sup>1</sup>Niğde University, Faculty of Architecture, Department of Landscape Architecture, Niğde/Turkey

<sup>2</sup>Ankara University, Graduate School of Natural And Applied Sciences, Department of Landscape Architecture, Ankara/Turkey

<sup>3</sup>Çukurova University, Graduate School of Natural And Applied Sciences, Department of Landscape Architecture, Adana/Turkey

\*Corresponding Author: [gpeyzaj@gmail.com](mailto:gpeyzaj@gmail.com)

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### **Abstract**

Bor is a central district located in the southeast part of the Central Anatolia Region, within the boundaries of Nigde and surrounded by Aladaglar in the east and Hasan and Melendiz mountains in the north. After the population increased in Bor with the passing of the Ankara-Kayseri and Adana-Konya railways in 1932, the need for green spaces increased due to the effect of construction. In the process, providing livable spaces to communities has become an important issue in environments that are shaped by the combination of natural and cultural objects. In this declaration, the amounts of green areas in the Bor district will be determined; the distribution of the active green areas in the neighborhood scale, the size and the per capita rates will be evaluated within the scope of the "Regulation on the Construction of Spatial Plans" dated 14.06.2014 and numbered 29030 Official Newspaper; recreational usage of available green areas will be discussed and alternative green areas will be proposed which provide effective use to the people of the region.

**Keywords:** Active green sites, Bor, recreation

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### **INTRODUCTION**

Societies have brought together natural and cultural values, while shaping environments they live in; and designed spaces outside the settlement, commerce and industry areas as green spaces throughout history. However, the result of changes in cities, rapid population growth, and intensive construction, the natural areas are being destroyed; environmental problems come to the agenda; the quality of urban life is decreasing, and the need for green spaces is increasing. The quality of urban life affects the physical and mental health of individuals as well as the ecological, economic and social situation of the city in cities shaping up with physical and natural environment integration. In this context, the concept of urban open-green space is on the agenda with the aim of improvement of urban living conditions, and balancing the interaction between individuals and nature.

In the Planned Area Type Construction Regulation numbered 28759, the concept of green space is defined as all of children's playgrounds reserved for community use, recreation, excursion, picnic, and coastal areas. According to this definition, large scale exhibitions, botanical and zoo gardens and regional parks can be evaluated within the scope of the green area. The standards of open-green space are a changeable phenomenon among cities in the country as well as countries in the country.

Because the age, culture, occupation and economic situation of urban people are different, the requirements for green space also vary. In determining the open-green area

norms, social, cultural, economic factors, and usage density as well as the physical environmental characteristics such as climate, topography, urban location of cities play an important role. The open-green areas depend on not only being adequate in terms of quality and quantity to perform their functions in the city but also being the easily accessible to the areas where the societies live in (Gül ve Küçük, 2001).

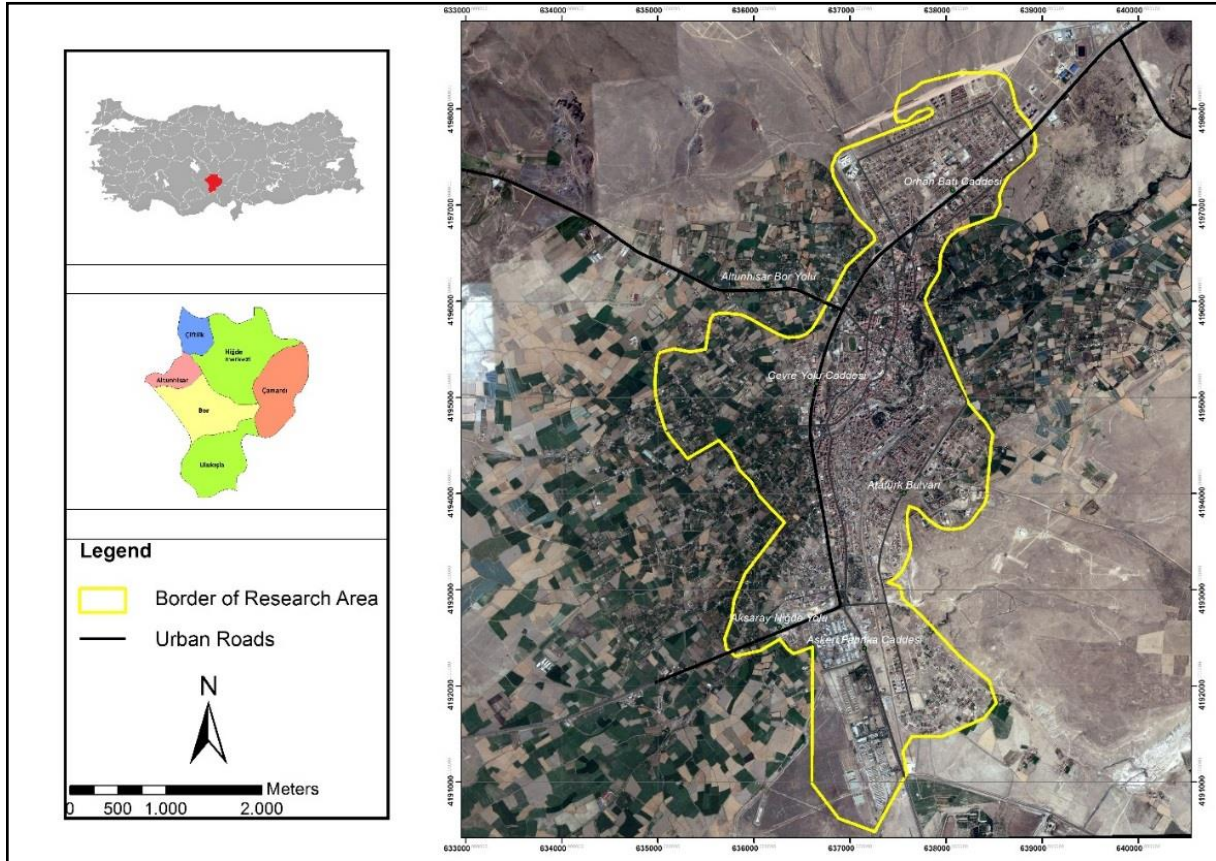
Regarding the green areas that have an important place in human life, according to 28th article dated 11.7.1972 and amended by the law numbered 14251 of the construction law numbered 6785, the amount of green space per population based on planning is at least 7 m<sup>2</sup> (Önder ve Polat, 2012). In the regulation on plan construction dated 02.11.1985 and numbered 18916 published in the official newspaper, parks, children's gardens and playgrounds are defined as active green area, and total area per capita in urban areas for these three uses is determined as 10 m<sup>2</sup> (Bolatoğlu ve Özkan, 2013); the total green area outside the municipality and contiguous area boundaries per person is determined to be at least 14 m<sup>2</sup> (Önder ve Polat, 2012).

Finally, "The Regulation on the Construction of Spatial Plans" published in the Official Newspaper dated 14.06.2014 and numbered 29030 and "the Regulation on the Principles of Plan Construction" published in the Official Newspaper dated 2.11.1985 and numbered 18916 were abolished. Social infrastructure areas are defined as "supplying the cultural, social and recreational needs of the individual and the community, and open/closed sports facilities and outdoor and green areas such as parks, children's horticulture, playgrounds, squares, recreation areas, etc. which are made by the public or private sector for the purpose of increasing the quality of life with a healthy environment, health, religious, cultural and administrative facilities" in Article 5, titled "Definitions and Principles of Spatial Use of the Regulation", and in Annex 2, the amount per capita of social and open green areas under the heading of urban, social and technical infrastructure is approved as 10m<sup>2</sup>.

In this declaration, the Bor district of Niğde where the need for green spaces increased due to the effect of construction with the passing of the Ankara-Kayseri and Adana-Konya railways in 1932 was selected as the study area. The study is specific because there is no previous work on Bor's active green areas. In this context, the amounts of green areas in the Bor district will be determined; the distribution of the active green areas in the neighborhood scale, the size and the per capita rates will be evaluated; recreational usage of available green areas will be discussed and alternative green areas will be proposed which provide effective use to the people of the region.

### **MATERIAL and METHOD**

The main material of the study is Bor district located in the southeast part of the Central Anatolian Region within the Niğde borders, on the Bor Lake between 37 ° 53 'north latitude and 34 ° 33' east longitude; surrounded by Aladağ Mountains in the east the mountains of Hasan and Melendiz Mountains in the north (Figure 1). In order to determine the amounts of active green areas of Bor and evaluate the distributions, sizes and per capita distributions of active green areas in the neighborhood scale, national and international approaches have been examined and visual data has been provided within the scope of field-study studies in the study area and benefited from the 1/1000 scale conservation zoning plan obtained from Bor Municipality and Google Earth 2016 satellite image. In the direction of the provided data, recreational use possibilities of existing green areas were evaluated and suggestions were made about alternative green areas that provide effective use to the people of the region.



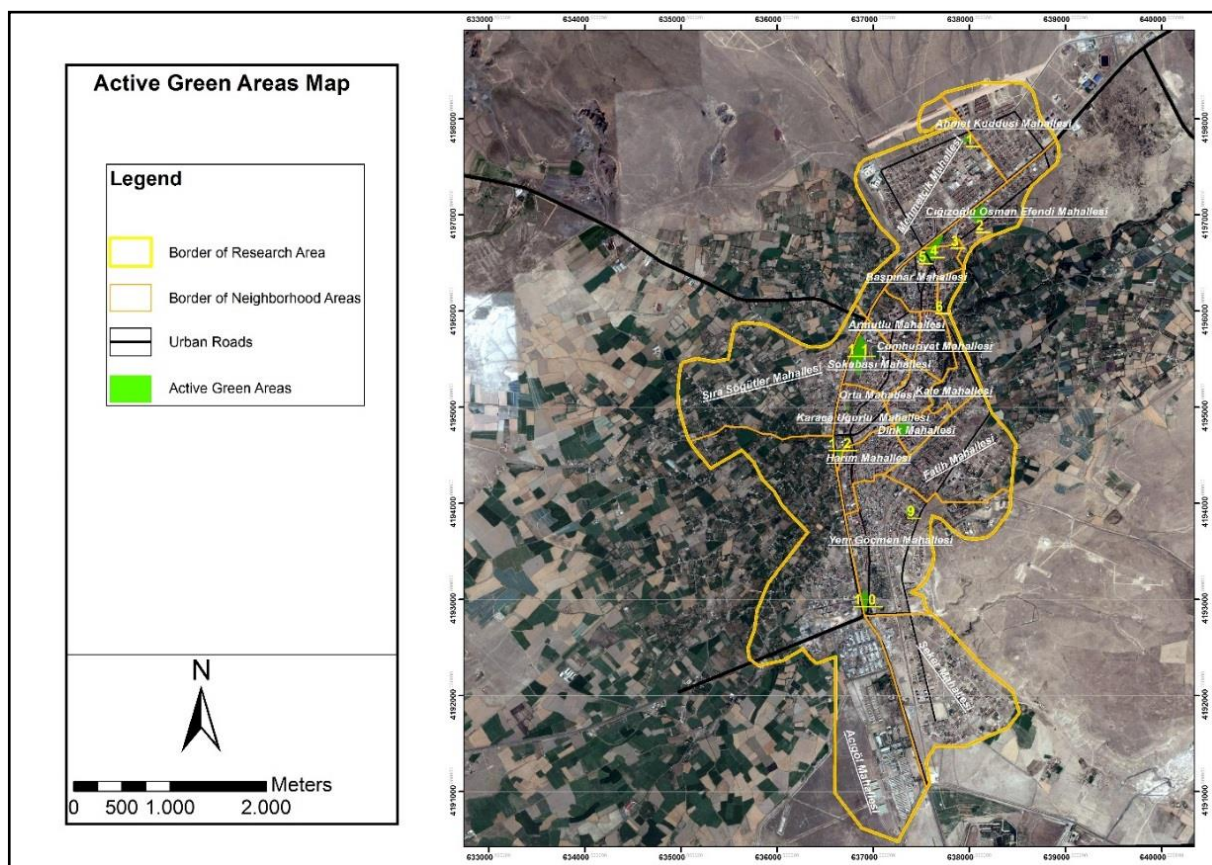
**Figure 1.** Niğde/Bor, geographic location

## RESULTS and DISCUSSION

Bor which has developed rapidly with the reason of migration from villages and different cities, is a district with a population of 36,499 according to the data of 2015 Turkish Statistical Institute. In the study area with approximately 1,300 ha area; Active green areas including children's play areas, neighborhood parks, school gardens, picnic and recreational areas were evaluated together with neighborhood boundaries on the satellite image as shown in Figure 2.

Among the parks located in the research area, only Atıf Gürkan, Üstün and Kayabaşı Park were named; other active green areas are not named, so they are expressed using the names of the neighborhoods where the parks are located. As shown in Table 1, there are green areas in the 17 neighborhood which is selected as the study area in the boundaries of the Bor district; 12 of them are considered as active green areas. Parks, children's playgrounds, school gardens, recreation and picnic areas at different scales in the active green areas of the district serve public use.





**Figure 2.** Research area active green areas

**Table 1.** The names and populations of the neighborhoods in Bor (TÜİK, 2015)

The Neighborhoods in Bor	Population	The Neighborhoods in Bor	Population
Acıgöl neighborhood	1.390	Kale Neighborhood	817
Ahmet Kuddusi neighborhood	2.675	Karaca Uğurlu Neighborhood	2.631
Armutlu Neighborhood	2.049	Mehmetçik Neighborhood	2.870
Başpınar Neighborhood	2.055	Orta Neighborhood	1.141
Cıgızoğlu Osman Efendi Neighborhood	1.141	Şeker Neighborhood	1.460
Cumhuriyet Neighborhood	1.681	Sıra Söğütler Neighborhood	1.317
Dink Neighborhood	1.161	Sokubaşı Neighborhood	1.722
Fatih Neighborhood	3.994	Yenigöçmen Neighborhood	3.903
Harım Neighborhood	4.492	<b>Toplam</b>	<b>36.499</b>

The World Health Organization states that the green area per capita in the city should be at least 9 m<sup>2</sup>, and 10-15 m<sup>2</sup> is the ideal. In the developed countries, the average green area per capita is 20 m<sup>2</sup>; it varies from about 1 to 9 m<sup>2</sup> in Turkey. In research areas, the amount of green space per capita determined by the proportion of the neighborhoods to the neighborhood population, and the proportion of total green areas to Population of research area is not enough.

However, the amount of green space per capita is above the limit value (10 m<sup>2</sup>) specified in the regulation due to the low population of some of the neighborhoods or the

possession of urban parks. When the total green area and total population of the research area are evaluated, it is determined that this amount is about 3 m<sup>2</sup> below the regulation limit value (Table 2).

**Table 2.** The amount of active green areas in Bor

Active Green Areas Number	Active Green Areas Name or Kind	Neighborhood	Area (m <sup>2</sup> )
1		Mehmetçik	2.881,25
2	High School Garden	Cığızoğlu Osman Efendi	19.527,47
3		Cığızoğlu Osman Efendi	2.091,60
4		Başpınar	21.184,11
5	Atıf Günkân Park	Başpınar	6.816,50
6		Kale	829,94
7		Karaca Uğurlu	1.290,17
8	Üstün Park	Dink	16.479,06
9		Yeni Göçmen	4.478,62
10		Yeni Göçmen	9.933,90
11	Kayabaşı Park	Sokubaşı	36.156,75
12		Karaca Uğurlu	2.818,94
<b>Total</b>			<b>124.488,31</b>

In Bor, the numbers determined by the ratio of the number of persons to the green area in the selected areas are low; the amount of green space per capita is not sufficient. When the calculations related to the neighborhoods are examined, it is seen that the amount of green area per person is mostly in Karaca Uğurlu Neighborhood (2,03 m<sup>2</sup>) and at least in Sokubaşı Neighborhood (0,047 m<sup>2</sup>).



**Figure 3.** Green Areas from research area

**Table 3.** Total area of active green areas in the research area, amount of green area per person

<b>Active Green Areas In The Research Area</b>				
<b>Number</b>	<b>Name and Type</b>	<b>Area (m<sup>2</sup>)</b>	<b>Neighborhood and Population</b>	<b>The amount per capita (m<sup>2</sup>)</b>
1	Playground	2.881,25	Mehmetçik (2.870)	1,00
2	High School Garden	19.527,47	Cıgızoğlu Osman Efendi (1.141)	18,94
3	Playground	2.091,60	Başpınar (2.055)	13,06
4	Playground	21.184,11		
5	Atıf Günkan Park	6.816,50		
6	Playground	829,94	Kale (817)	1,01
7	Playground	1.290,17	Orta (1.141)	1,13
8	Üstün Park	16.479,06	Dink (1.161)	14,19
9	Playground	4.478,62	Yeni Göçmen (3.903)	3,69
10	Playground	9.933,90		
11	Kayabaşı Park	36.156,75	Sokubaşı (1.722)	20,10
12	Playground	2.818,94	Karaca Uğurlu (2.631)	1,07
<b>Toplam</b>		<b>124.488,31</b>	<b>Araştırma Alanı Toplamı (36.499)</b>	<b>3,41</b>

When the table 3 is evaluated, it is seen that the amount of green area per person is mostly located in Sokubaşı district (20,10 m<sup>2</sup>) and at least in Mehmetçik district (1,00 m<sup>2</sup>). 5 (Mehmetçik, Kale, Karaca Uğurlu, Dink, Yeni Göçmen Parks) of the 12 parks in Bor have children playgrounds. Cıgızoğlu Osman Efendi high school in the area has a green area, there is no children's playground (Figure 3). It is seen that there are children's playgrounds in the entire neighborhoods where the active green areas are located. However, these areas were mostly restricted to swings and slides; It has been determined that there is no game equipment that will contribute to the physical development of the children and it is determined that the use of the plant to contribute ecologically and aesthetically to the town is insufficient. The sports and picnic areas are located only in Üstün Park and Kayabaşı Park, which form active green areas outside the children's play area.

It is seen that the green areas which are located in Bor and expressed by the covered areas are not homogeneous and inadequate in the whole district. It is very important to consider of the ecological functions of the green areas as well as the economic functions, and base on the ecological basis of future design approaches in order to understand the interaction between the district population and the active green areas. In order to determine the amount of green space per capita, it is necessary to calculate the ratio of the user population to the amount of green space. In addition to this, it is necessary to determine the adequacy of the amount of green areas per capita throughout the district, to use the green area in accordance with the population and to distribute the green areas homogeneously within the settlement areas.

## CONCLUSIONS

It is known that the urban green areas must be within 5 minutes of walking distance from the residential centers, neighborhoods and shopping centers or be within convenient reach by bicycle. Accessibility of green spaces is an important issue that must be taken into account during the planning and design phase. Developed countries developed proposals in the field of accessibility of green areas. When the UK sample is examined; it is emphasized that At least 1 ha for the area with a population of 1000 in the distance of 300 m from the area between the green area and the residential buildings; at least 20 ha for 2 km distance; at least 100 ha for 5 km distance from the dwelling, and at least 500 ha natural reserve areas for 10 km distance from the dwelling should be formed (Moughtin, C., Shirley, P., 2005).



The social and environmental impact of urban green spaces in quality urban life is important. Advantages of the area are related to accessibility and proximity. It is proved in previous studies that people living in urban areas want to live residence closer to green areas. Burgess, et al. (1988); Coles ve Bussey (2000) ve Grahn and Stigsdotter (2003) are reported that green areas closer to residential areas will be visited more by users. In addition to this, access to parks is an important issue in terms of social interaction (Önder, et al., 2011).

According to the data obtained in the accessibility and spatial analysis within the scope of the research, the following results were obtained:

- It has been observed that there is an insufficient and unbalanced distribution of the green areas in Bor and surrounding areas.
- It has been determined that the playgrounds, sports areas, neighborhoods and district parks, which are considered as green areas in Bor, have a very small area within the given criteria.
- It has been determined that the existing green spaces in Bor do not qualify for the social, cultural and psychological needs of the individuals
- The amount of green space per person in Bor province is inadequate compared to European Union cities; and these areas are well below the criteria when they are examined in the frame of construction law in Turkey.
- Societies that perceive that the green space surrounding them is of better quality perform more physical activity than those who perceive the surrounding green space as less quality (Annear, et al. 2009, Stronegger, et al. 2010, De Jong, et al. 2012).

The importance of green spaces is better understood by ocieties living in urbanization, dense populations, and insufficient green space, and there is no more active green space in urban environments. Considering the ecological functions of urban green areas; the protection of existing green areas on a regional or national scale, and the conception of new green spaces in these circles have an important place in the landscape design. In this context, it is necessary to raise the awareness of local governments and local people, increase the employment of landscape architects by municipalities, and to base the ecological basis of urban landscape designs on the contribution of active green areas to urban life quality and urban ecology.

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