



The Importance of Planting Open - Green Field: The Case of Nigde

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Abstract In urban environments green areas play an important part in forming good quality environments with their ecological, economical, physical, social and aesthetic functions. To create a livable environment with open and green spaces, has been an indispensable part of our lives. In this research, afforestation studies performed in open-green spaces of Niğde city were evaluated from viewpoint of choice of species, landscape design and techniques, and some recommendations were introduced. In the current applications, use of limited number of species for afforestation, and as a result of this, formation of uniform planting design, some inappropriate technical approaches for planting and maintenance were determined as the principle problems. To solve the problem, plant material used in landscape plans in Niğde province were determined. In additional, planting design analyses were done with regard to determined plant material in the area. Application problems and their solutions were discussed.

Keywords Landscape, Natural Areas, Niğde, Unplanned Urbanization, Urbanization

1. Introduction

Since the nineteenth century, industrialization in parallel with advances in technology, population growth, urbanization, various types of pollution, forest fires, field trips, overgrazing and drying of wetlands, the pollution caused by the pesticides used in agriculture and the source of excessive unconscious use as a result of human impacts increased pressures on natural resources. Especially in the past and in the present century, has provided the opportunity to benefit from the unlimited nature of modern technology people [1].

This continuation of rapid development in technology gradually increasing the pressure on the environment leading to cities affected the most advanced of these pollution and poor quality environment. Nowadays people are forced to live in environment including the most important and indispensable part of the city air, soil, visual and noise pollution.

An indispensable requirement to remove all of these problems and adverse conditions in which they live in the urban area need healing effect as well as the urban fabric on urban open and green spaces. People need the city that allows you to increase the quality of the ecological aspect and the contact with the nature of living in the city, to meet cultural, recreational and socio-ecological needs.

The benefits of urban green spaces open themselves to form the healthiest and dynamic part of the urban areas including the material formed from plant-growing and ever-changing environment with structures [2].

Political, economic, spatial and cultural open green space that cannot be evaluated in the healthy urban transformation process is one of the important reasons of contemporary urban problems of interest to urban planners and architects [3].

In recent years, increasing population, unplanned urbanization and planting works have caused an irregular urban life and the deterioration of the natural environment in which we live venues adversely affect living organisms requirement. In addition, with our increasing population of the surrounding settlements were created in places unfit for physical infrastructure environments (urban sprawl, global warming, etc.) are also disrupted.



The most important work of improving the green space in terms of one or more environmental created green space is given to the day to day work and work has begun, though a bit late to make perishable nature, making livable and rehabilitation.

The planting design as plant species diversity is used as criteria to be used in both aesthetic and functional form. In the first place of the design one of the factors is discussed on the basis of the design of the selected plants that are the planting flowering variety of criteria, autumn coloration and texture. To create a visual impact on the living and recreational activities are given place to the noise of the cars made by road border plantings to make the living units in the field of recreational activities as well as trying to prevent pollution. The various components used in the whole design (different features plant species) are trying to create a comprehensive balance in the composition of a combination [4].

Creating green spaces in urban environments composition process starts from the small home garden for people, the larger parks, the city will continue until the forest. One of the areas is the sine-qua-non where we can say that of our lives are in the park or city park.

Olmsted parks are defined as just green spaces, encouraging participation in the democratic life of the citizens in the city park has been suggested that they own recreational activities. Once the outer wall of the city where there are large areas of urban green space aimed at providing the transportation to the city center of social communication. In this respect, parks allows the strengthening of the social life and the realization of face to face communication only beyond that found in the green fields [5].

According to the Olmsted definition city park larger than the residential garden, more simple and natural look but must have an intense green tissues, such as a woodland and forest. This urban park by definition should include the city people take away and forgotten artifacts that occur in the mind of the natural elements and compositions [5].

Trees and shrubs are important plant materials are used extensively in their work to create green spaces in urban areas. In urban areas;

- limiting and directing the urban development,
- the city's microclimate, soil and improve the hydrology,
- Creating biotype,
- reduce the impact of environmental issues on people,
- orientation in traffic, highlighting, shading and ensure pedestrian safety,
- mass - space and creating balance
- recreation potential - they contribute in terms of increasing the possibilities [6, 7, 8].

Urban trees and shrubs used in open-green space are tend to exhibit different characteristics according to the natural environment in rural areas or presence and due to the conditions to urban development. Therefore The expected benefits from it is depending on the plant material, physiological and morphological structure - growth performance and this differentiation directly affect the selection of taxa that can be used in urban outdoors. The environmental conditions which may be vary for each city requires the best analysis [9].

No research is found in Nigde city that involves the reforestation activities carried out in the open green space. The purpose of this research is to examine in terms of plant design and implementation, Nigde taxon selection with aspects not covered before afforestation work carried out in the city and develop proposals in the same direction.

Identification of existing urban green space and the diversity of plants used in these areas is designed to assess the suitability of compliance in terms of ecological and landscape design principles in the city of Nigde is carried out in this research which will be held in the city of Nigde intended to provide similar benefits to urban green space studies.

2. General Information about the City of Nigde

2.1. Location of the Area

In the southeast of the Central Anatolia Central Taurus are Bolkar, Located in the north, extending north of the area and remains Aladags. With an area of 7312 square kilometers in Nigde province is 1,300 meters of altitude.



The western part is the wavy and Plains, other region is a mountainous structure. Aksaray in the northwest, north Nevşehir, Kayseri northeast, west and southwest in Konya, Mersin in the south, is adjacent to the southeast and east of Adana.

Surface area is about 7,400 km², which is 46 square kilometers. In the province of Nigde, human population density in 46 / km²[10]. According to the data 2015, Nigde population is 345 372. The total amount of green space in the city center Nigde is approximately 2.183.681 m² (Table 1). Our country is falling per capita amount of open green space in the city, there are at very low levels compared to developed countries. The average person falls 1.2 m² open and green spaces in cities in Turkey [11, 12]. In contrast, in America at the city level open and green space normal, usually urban density of 250 persons / ha (10 people to 400 m²) is considered to be 40 m² per person, provided that [11, 13]. 3194 Zoning Law, according to the extracted 23 804 No. of new regulations in 1999, whatever the population in areas with municipal people active green space amount per (park, the sum of the children's garden and playground) is set at 10 m² [14].

The trees and shrubs in urban roads are considered as the main material of the study of City parks and squares (Figure 1).

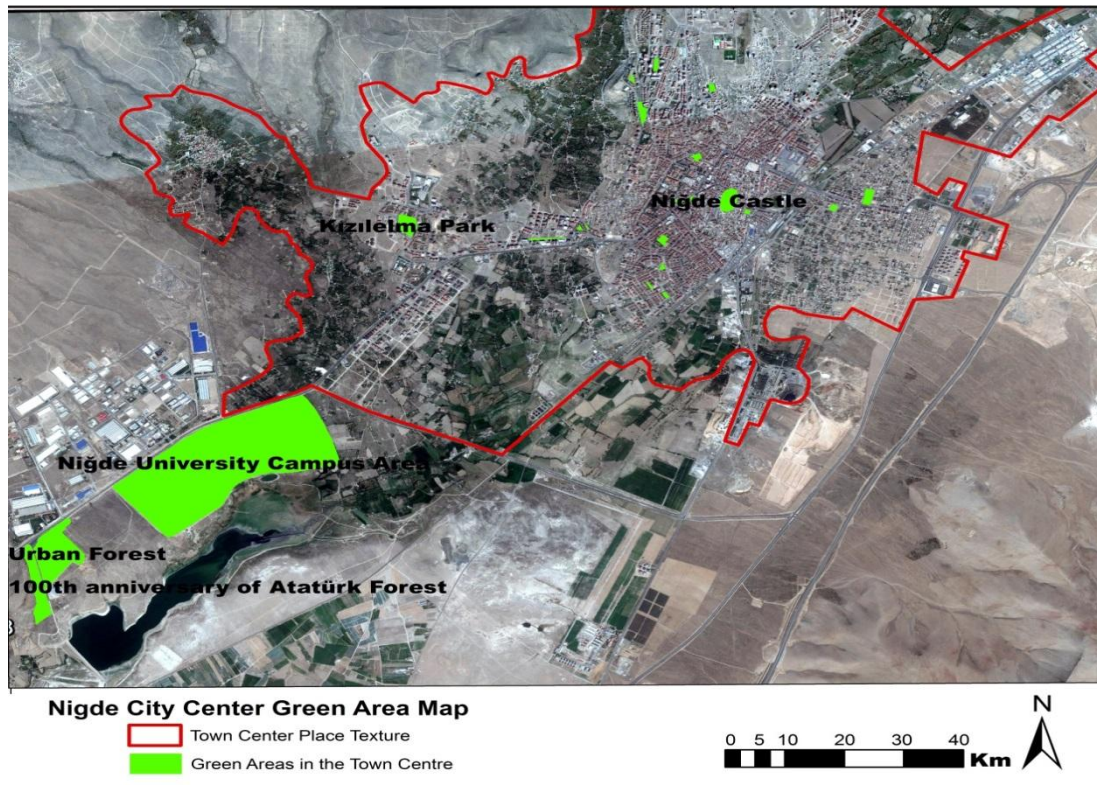


Figure 1: Nigde City Center Green Area Map

Table 1: The amount of green space in the city center Nigde

Open Green Space	Area (m ²)
Kızılelma Park	36.113
The Castle Nigde	37.775
Nigde University Campus Area	1.708.928
Şadırvan Park	2.353
Teachers park	3.853
Urban Forest	208.190
100th Anniversary of Atatürk Forest	102.467
Other Public Green Areas	84.002
Total	2.183.681



2.2. Determination of Nigde City Plants Landscaping

Although across the city of Nigde, a sufficient number of people can benefit directly, wide green areas (parks, children's playground, picnic area, urban, etc.) are not enough. The largest green areas called Kızılelmapark and Nigde Castle is located in the city.

Other green spaces obtained between the islands structure is given in the medians especially found in the emerging city of boulevards tissue contributing quantity and urban green space.

However, Plant in urban areas often need to adapt under the special condition that differ than natural climate for example it's air quality, habitat, hydrology, biodiversity, soil structure etc. Most of these differences are brought by the loss of urban environment through the pollution of component like air, water, soil pollution. Many of these factors should be significantly taken into consideration of urban ecosystem when urban breeding, maintenance of urban green areas, plant selection, plant design and planting are conducted. These should be carried out very carefully and by the people who are expert in these sector in terms of technique.

To fulfill the functions expected of them having Landscape architecture work in dimensions selecting dendrologic features as such shape, color, texture attention of the plant and ecological requirements must be treated a very important part. In addition, harmony, contrast, balance, rhythm, movement, repetition, proportion, range, intonation as design principles and very well known by the designer of mass effect and function of the plant and the synthesis is the most important condition to achieve aesthetic and functional spaces [15].

Most *Cedruslibani* in reforestation efforts in Nigde, *Cedruslibani* (Lübnansediri), *Cupressus sempervirens* L. var. *horizontalis* (Mill.) Gord. (Dağınkservi), *Pinus pinea* (Fıstıkçami) the most heavily used coniferous ağaçtır park as well as roadsides and seen almost the entire refuge name according to Nigde circumstances. *Fraxinus angustifolia* L (Sivri Meyveli Dişbudak) and *Acer negundo* L. (Dişbudak Yapraklı Akçağaç) are the other deciduous trees can be seen in parks or en-route weather in small groups.

Other trees and shrubs that are seen in urban open green space is given below:

- *Melia azedarach* L. (Tespil Ağacı)
- *Cupressus sempervirens* var. *Pyramidalis* Targioni-Tozzetti (Piramit Servi)
- *Robiniapseudo acacia* L. var. *umbraculifera* DC. (Top Akasya)
- *Platanus orientalis* (DoğuÇınarı)
- *Aesculus hippocastanum* L. (At Kestanesi)
- *Ailanthus altissima* (Mill.) Swingle (Kokarağaç)
- *Morus alba* L. (AkDut)
- *Ligustrum japonicum* Thunb. (Japon Kurtbağrı)
- *Morusalba* L. var. *pendula* Dipp. (SarkıkDut)
- *Cercis siliquastrum* L. (Erguvan)
- *Populus x canescens* (Aiton) Sm. (Boz Kavak)
- *Malus floribunda* (Kırmızı Yapraklı Süs Elması)
- *Elaeagnus angustifolia* (İğde)

Nigde taxa used in urban open green space development and reforestation efforts are mostly species according to climate. However, one of the area's natural vegetation *Elaeagnus angustifolia*, *Malus*, *Prunusdulcis*, *Juglansregia* taxa outnumbered as it used to be able to reach easily. Nigde urban green space in the city for his work in addition to the existing growth is possible to suggest the appropriate new taxa are seen in parks and medians (Table 2).

Table 2: Recommended Plant Species For Nigde Green Space

Tree Species	Shrub Species	
<i>Acer platanoides</i>	<i>Abelia grandiflora</i>	<i>Plumbago auriculata</i>
<i>Araucaria heterophylla</i>	<i>Berberis thunbergii</i>	<i>Pittosporum tobira</i>
<i>Catalpa bignonioides</i>	<i>Bougainvillea glabra</i>	<i>Pyracantha coccinea</i>
<i>Cercis siliquastrum</i>	<i>Buxus sempervirens</i>	<i>Rosmarinus officinalis</i>



<i>Crataegus monogyna</i>	<i>Chaenomeles japonica</i>	<i>Spirea vanhoutteii</i>
<i>Cupressus arizonica</i>	<i>Cotoneaster franchetti</i>	<i>Thuja orientalis</i>
<i>Cupressus macrocarpa</i>	<i>Euonymus japonica</i>	<i>Viburnum tinus</i>
<i>Fraxinus excelsior</i>	<i>Juniperus sabina</i>	<i>Ligustrum vulgare</i>
<i>Quercus coccifera</i>	<i>Juniperus horizontalis</i>	<i>Lonicera caprifolium</i>
<i>Salix babylonica</i>	<i>Lagerstroemia indica</i>	<i>Mahonia sp.</i>
<i>Schinus molle</i>	<i>Lantana camara</i>	<i>Photinia froseri</i>
<i>Syringa vulgaris</i>	<i>Ligustrum ovalifolium</i>	

This event of Nigde city focus on specific taxa while maintaining the overall existing cities uniform design by selecting plant taxa bases on season change, color, evergreen or deciduous tree, shrub, and a combination of all of this may be formed a beautiful green area. Shortly it can be said that design should be created in such a way so that it can maintain harmony (Figure 2).

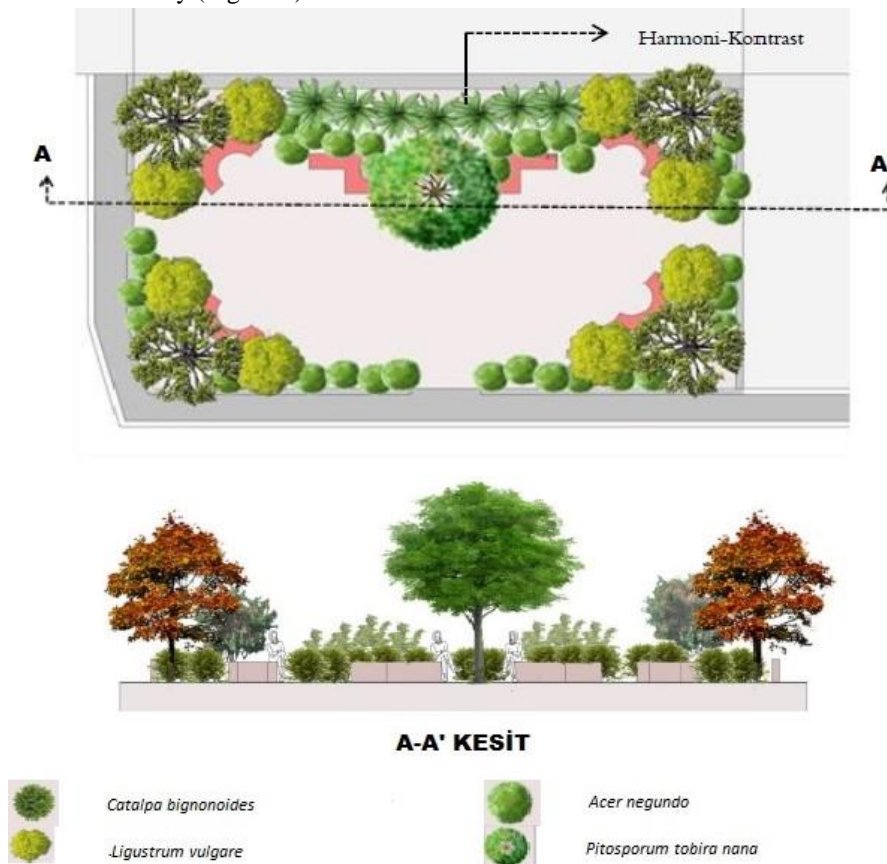


Figure 2: Recommended harmony [4]

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3. Conclusions and Recommendations

Despite the absence of open-sufficient and findings regular information on green areas of Nigde city, active open green areas must be organized by the Municipality (neighborhood parks, children's playgrounds and play areas). In addition to these potential areas, roads and medians, cemeteries, university campuses, urban forests and woods may arise like new average per capita will also added other natural open 6.32 m² open.

Holistics exhibit the existing open-green spaces located and scattered in small parts of the city and owned those terms of aesthetic and functional characteristics, the city will meet the needs of the people that are qualified to do about space planning and implementation. The social fabric of the strong urban people (age, gender, occupation, culture level) need to be taken into consideration for the trends and prospects of green areas [11].

The first step aimed to the realization of the theoretical approach of the elimination of the lack of green space for open-afforestation, along the same lines, city-specific environmental conditions and suitable plant taxa have been put forward.

The proposed trees and shrubs have been developed to be more successful urban open green space reforestation efforts in Nigde taxa have been identified that can be grown in the city of Nigde.

Some of naturally grown trees and shrubs (*Elaeagnusangustifolia*, *Malussp.*, *Prunusdulcis*, *Juglansregia*) can be expanded to the forefront.

As a result, Nigde itself will be healthy. To make a modern and livable space, green space quality and quantity of the plan taking into account. Application of scientific studies on technical criteria and a unity with the plan where the decision meet supply, and shall to ensure continuity and flexibility for changes of time all open green areas within this basis.

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