International Journal of Landscape Architecture Research
Uluslararası Peyzaj Mimarlığı Araştırmaları Dergisi
E-ISSN: 2602-4322, 3(2): 138-150, 2019

Evaluation of Planting Design of Ankara University Tandogan Campus

Zeynep Cetiner[1], Zuhal Dilaver[1]*

[1]Department of Landscape Architecture, Faculty of Agriculture, Ankara University, Ankara, Turkey

*Corresponding Author: dilaver@agri.ankara.edu.tr
[i] This paper was presented at ICLAR 2019 Congress, İstanbul, Turkey, 23-24 August 2019.

ABSTRACT

Tandoğan Campus of the Ankara University, which is the first university of the Republic era, was founded in 1943 with the opening of the A.U. Faculty of Science. Today, there are buildings belonging to Rectorate and various units affiliated to the Rectorate, Faculties of Science, Pharmacy and Engineering and the Nuclear Sciences, Social Sciences and Biotechnology Institutes in the campus area. The structural and vegetal landscaping of the campus, which also includes registered structures, started in the first period and continued until today. Especially natural and exotic species planted in the early periods and reached to the present day add value to the area in terms of history and culture. There are species registered as cultural assets in the field, such as Pinus griffithii McClelland, Cupressus arizonica Greene, Abies nordmanniana (Stev) Spach., Juniperus virginiana L. In 2016 the site was registered as "Natural Site-Sustainable Conservation and Controlled Use Area". The plant existence of the site was determined within the scope of the project titled as "Establishing the Plant Survey and Inventory of Ankara University Tandogan Campus" supported by Ankara University Scientific Research Projects. While in this study, Ankara University Tandogan Campus planting design was evaluated in terms of species diversity as well as; noise control, image control, orientation, limitation, siege, shielding, shadowing, linking, highlighting, background forming, softening, vision framing and visual appeal functions.
Keywords: Ankara University Tandogan Campus, Planting Desing, Campus Plannind and Desing

INTRODUCTION

University campuses which increase the quality of life of their users with own outdoor spaces, supply positive contributions to learning and psychological and social development of students. They are also areas that play an important role both in the spatial development of the city and in the development of economic and social consciousness. In this context, literature review for campus design was made and the vegetative design of Ankara University Tandoğan Campus was evaluated in this study.

Ankara University Tandogan Campus

Ankara University Tandogan Campus, which has an important place in the open-green space system of Ankara; is an important landscape area in terms of ecological, historical, cultural, visual, educational and social aspects of the city [1]. Biodiversity within the campus beside the opportunity of recreational and sporting activities play an important role in the interaction of users with nature [2]. The campus area is used by a very large population of academics, students and other staff. The campus has a variety of uses that appeal to this population and enable them to spend quality time. Away from the chaos of the city, green spaces, recreation and working areas and football, volleyball, basketball and tennis courts are available. Also, there is an indoor olympic swimming pool in the campus which is open to outside users [1].

The working area is an educational institution and its main function is to provide education to students and enable scientific studies. While educational activities continue in classrooms and other indoor spaces, the open spaces are important areas that serve education due to the biological diversity of the area. In the education and research studies of the departments of the University, based on the recognition and use of plant material such as Botany, Pharmacy and Landscape Architecture, the plants diversity

and the existence of plants in adult form in the campus, constitute an important resource. In the early periods the area is designed and functionalized as a botanical garden, therefore a significant wealth of plant diversity in the campus and this wealth is great contributes to educational activities. [1]. In 2016 the site was registered as "Natural Site-Sustainable Conservation and Controlled Use Area". Also in 2016, the plant existence of the site was determined within the scope of the project titled as "Establishing the Plant Survey and Inventory of Ankara University Tandogan Campus" supported by Ankara University Scientific Research Projects. (Fig.1). There are species registered as cultural assets in the field, such as *Pinus griffithii McClelland, Cupressus arizonica Greene, Abies nordmanniana (Stev) Spach., Juniperus virginiana L.* (Fig.2)

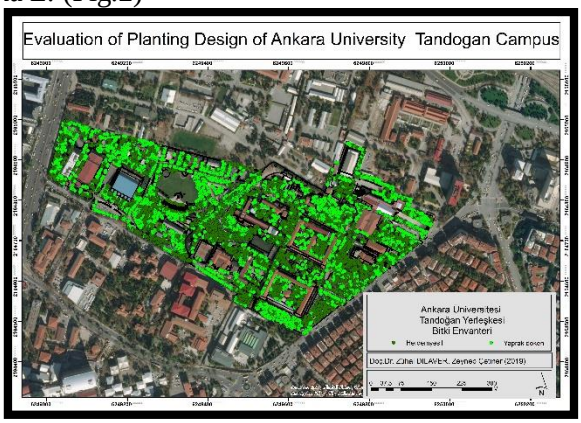


Figure 1. Plant existence of A.U. Tandogan Campus



Figure 2. Registered samples from the campus area

Campus Planting Design

Open spaces within the campus are the areas that reduce the stress of the users by interacting with natural elements, create positive effects on mental and emotional health, and carry the learning process outdoors. In this context the campus landscape should include green spaces and, facilities to allow for many activities such as eating and drinking, reading, chatting, sitting, listening to music, rehabilitation and contact with nature, on the other hand, it must have various conceptual and spatial constructions brought about by a campus. Campus landscape; should have the necessary spatial contents for the development of the psychological and social life of young people, should contain spaces to manage student diversity, energy and for the nature curiosity, reduce stress, should contain study areas in which the knowledge learned in theory is reinforced in the outdoor space [3].

Campus landscape; should have pragmatic, behavioral in terms of beneficial aspects and functional quailities such as orientation, landscape watching with created vistas, continuity in use by ensuring that the landscape remains colorful in four seasons, supply the plant diversity, recognition the plants and also should have aesthetic and visual qualities with syntactic/formal properties such as define boundaries, identification of walking ways, creating and defining space [3]. The open-green spaces within the campus, have functions such as; to provide vehicle-pedestrian circulation, to connect people and the nature, to provide aesthetic value to the university campus [4].

To have a strong identity a campus landscape should contribute to learning with open spaces, have the areas respecting the past, adapting to the present and thinking about the future. Besides, the material,

plants and open space design should be in integrity. Sustainable, native and low maintenance species should be preferred, rare use of exotic species will contribute to the increase diversity of plants and to educational research. The presence of monuments and sculptures on the campus is one of the features that supports the landscape. On-campus signs should be placed in a way to assist users in navigating [5]. On the purpose of identification of circulations and develop identity within the campus, different plant species should be used, a planting design should create that supports / reinforces linearity in structural landscape design [6].

Plants that are not resistant to diseases and invasive species should not be used. Plants used must be healthy, uniform form and appropriate size. Lawn areas requiring regular watering, fertilizing and mowing should be limited, turf types that require little maintenance or natural groundcover plants should be used. Evergreen and deciduous plants should be used together to provide visual attention throughout the year. Informal planting designs should be included compatible with the natural character of the area, formal planting designs should be limited to road sides and building environments. Deciduous and evergreen trees and shrubs should be used together for screening purposes. Species that may cause health problems should not be preferred in plant material selection and designs should not be made to create unsafe areas away from common areas. Regular road afforestation should be done along the road [7].
In order to minimize the maintenance process and for the plant to grow freely, designs should be made considering the mature dimensions of the plants. Edible plant species should be included in areas close to the sitting areas and refectories [8].

Hierarchy of plant material needs to be well developed to distinguish focal points and reflect site-specific functional objectives. The linearity of the campus and its surroundings should be strengthened by planting reflecting the campus borders and circulation pattern. The entries should be emphasized by creating original colors and forms to complement the architectural features [9].
Plants; play a vivid role in shaping the landscape and defining the area. In this context, architectural usage of plants that shape the structural space can be give as ; placemaking (Limiting, Surround, Shadow), establish connection between spaces, screening and ensure confidentiality. Plants are used to provide rest, relaxation, shadow and space creation functions in the formation of small pockets on the edge of vehicle and pedestrian circulation. Plants are visually controlling elements, they are used as masking elements to hide undesirable or ugly areas and objects. In order to provide confidentiality, plants encircle the space and hinder sight and movement. Plants with various size, form, texture and color effects; used as an emphasis element in building entrances, intersections, near buildings or in visually prominent settlements. Structural elements are visually supported with true plant species. Planting designs are made to control the movements of users in the space. In this way, the orientation can be realized to desired places. Plants make their spaces more understandable and remarkable, in this context they are used as backdrops to indicate the location and importance of objects in the space. In order to soften the sharp and hard lines of architectural forms, the plants with proper form and texture properties, can give the place an inviting and humane character. [10] [11].

METHOD

The study was carried out in three stages: literature review, field observations and evaluation. By giving general information about the area and information on campus design, vegetative design was evaluated through photographs taken on campus.

RESEARCH FINDINGS

Planting Design of Ankara University Tandogan Campus

In the campus 190 plant species and a total of 8,195 plants have been identified; 32 of these species are evergreen trees, 45 are evergreen shrubs, 84 are deciduous trees and 29 are deciduous shrubs. While evergreen plants predominate the administrative and academic area of the campus, deciduous plants and lawns predominate the rest and recreation area.

In addition to the applications of creating shadow effects by using the wide-diameter deciduous trees in sitting areas, there are also planting designs that do not include shade trees or with wrong species selections such as coniferous plants, fruit trees (Fig.3, Fig.4, Fig.5).



Figure 3.



Figure 4.

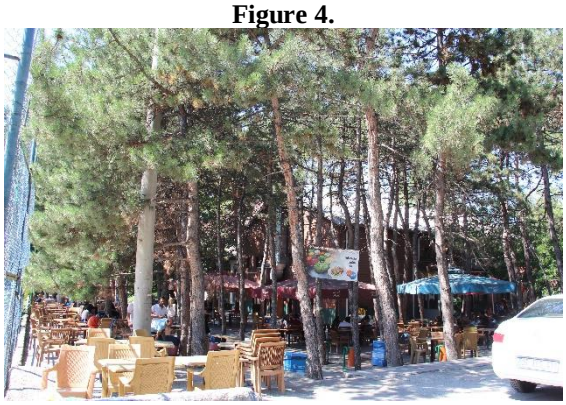


Figure 5.

In car park planting, there exist the use of coniferous and deciduous plant species having parts that may damage vehicles or having no shadow effects (Fig.6, Fig.7, Fig. 8).



Figure 6.

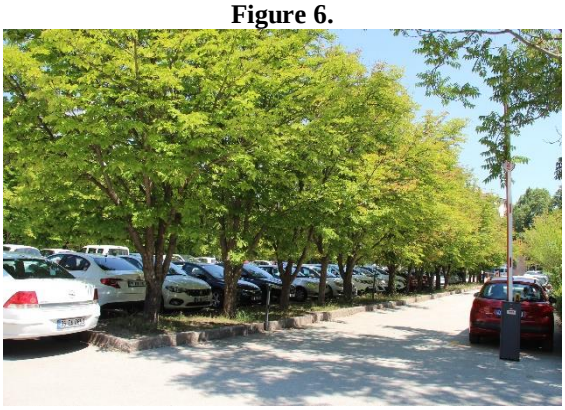


Figure 7.



Figure 8.

Noise and image control was aimed with trees and winders at the sides of walls where there is heavy traffic effect. However, in the first period, no effect could be achieved with deciduous tree species in winter, and afterwards coniferous plants were added in some areas (Fig.9, Fig.10).



Figure 9.



Figure 10.

Some unsafe areas have been created with intensive use of evergreen, densely textured plants away from common areas (Fig.11).



Figure 11.

Special places have been created with evergreen plants without visual hindrance (Fig.12).



Figure 12.

In order to create shadow areas for pedestrians and to reveal the circulation pattern on the main roadsides, wide-diametered species were used. In addition, shrub-shaped plants were used in some sections for separating and limitating the vehicle and pedestrian roads (Fig.13, Fig.14).



Figure 13.

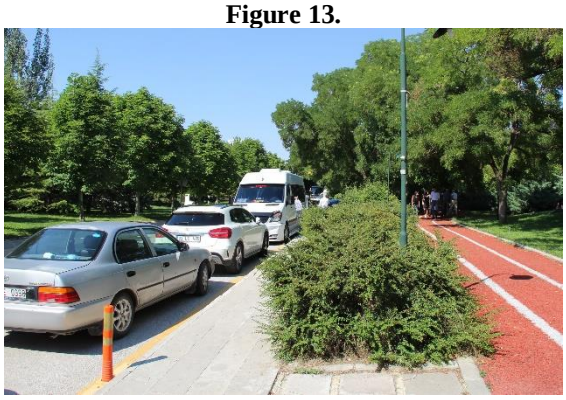


Figure 14.

In the designs around the sculptures on campus, backdrop features of plants were not utilized (Fig.15, Fig.16).



Figure 15.



Figure 16.

In some parts of the campus, wrong size and species selection of plants prevents the detection of signs used for orientation and information (Fig.17, Fig.18).



Figure 17.



Figure 18.

In order to organize and direct the movements of users in the space, limiting and orientation effects of evergreen and densely-textured plants were utilized (Fig.19, Fig.20, Fig.21).



Figure 19.



Figure 20.



Figure 21.

Non-aesthetic images are hidden with densely-textured evergreen plants (Fig.22).



Figure 22.

With the use of drooping plants in the sitting area near the water, visual appeal of the area and relaxing effects of water have been increased (Fig.23).



Figure 23.

The highlight effect of plants on the entrances of structures is generally not utilized (Fig.24).



Figure 24.

Highlight effect has been achieved through the use of plants of different sizes, forms, textures and colors at the campus entrance (Fig.25).



Figure 25.

Through neglecting the mature dimensions of plants when making planting design, unsuitable areas for both plants and users in roadside and other areas were created (Fig.26, Fig.27).



Figure 26.



Figure 27.

The contrast between the horizontal form of the structure and the vertical forms of the plants increases the visual appeal (Fig.28).



Figure 28.

Cupressocyparis leylandii used in front of the building contrasted with the building in terms of color and form and showed an aesthetic appearance. However Platanus orientalis planted without considering the size of its mature form of disrupted the integrity (Fig.29).



Figure 29.

The plants softened the formal and sharp linear lines of the structure and provided a more aesthetic appearance (Fig.30).



Figure 30.

CONCLUSION

In the scope of this work, Ankara University Tandoğan Campus planting design examined in terms of; species diversity, noise control, image control, orientation, limitation, siege, shielding, shadowing, linking, highlighting, background forming, softening, vision framing and visual appeal functions. During the land trip, the vegetative design of the campus area was observed in line with the determined functions and the photographs were taken from the campus area and the assessments were made by using the campus design guides.

In the campus 190 plant species and a total of 8,195 plants have been identified; 32 of these species are evergreen trees, 45 are evergreen shrubs, 84 are deciduous trees and 29 are deciduous shrubs. While evergreen plants predominate the administrative and academic area of the campus, deciduous plants and lawns predominate the rest and recreation area. At the campus borders, vegetative arrangements were made for siege and shielding. However, in some regions this effect is rather weak due to the sparse use of plants and the selection of fine-textured species. In order to strengthen the screening effect for noise and image control; coarse-textured combination of evergreen trees and shrubs should be used together gradually. Orientation and limitation function is provided by evergreen and deciduous plant species in campus area. In order to provide shade in sitting areas and parking lots, fruit trees and coniferous plant species were used along with broad leaved trees. In such areas, it is recommended to use broad-crowned, densely textured species that will not harm the creatures and vehicles underneath. At the entrance of the campus, a composition was created with different types of plants of different sizes, forms, textures and colors and the plants were used for highlighting. By applying similar compositions to building entrances, the entrances should be defined and identified. Sculptures in open spaces increase the original value of the space and make the space defined; the perception of these objects should be increased by using them with evergreen, regular texture, suitable sized plants that can create a background effect. In order to soften the large masses and sharp linear lines of buildings and circulation system and overcome the sharp formal effect of human perception, proper positioning of plants in such areas is recommended. An important structure or space that is intended to be shown to the users within the area should be defined for the user by ensuring that the plants remain in the focus of vision with the effect of framing the vision. The visual appeal of the space in the human perception can be increased by the unique size, form, color and textures of the plants, the plants have the functions of providing visual appeal in the campus and this situation contributes to the value of the landscape by creating aesthetic spaces within the campus.

REFERENCES

[1] Dilaver, Z. ve ark. 2016. Ankara Üniversitesi Tandoğan Yerleşkesi'nin Bitkisel Rölövesinin ve Envanterinin Oluşturulması. Ankara Üniversitesi Bilimsel Araştırma Projeleri.

[2] Kurt, L., Yiğit, N., Çelik, M., Yazgan, M., Dilaver, Z., Körüklü, T. ve Özenalp, V. 2016. Ankara Üniversitesi Tandoğan Yerleşkesinin Doğal Sit Niteliklerinin Değerlendirilmesi, Tespit Ve Tesciline İlişkin Ekolojik Temelli Bilimsel Araştırma Raporu.

[3] Yılmaz, S. 2015. Bir Kampüs Açık Mekanının Peyzaj Tasarımı: Süleyman Demirel Üniversitesi Orman Fakültesi Binası. Kastamonu Üniversitesi Orman Fakültesi Dergisi. 15 (2); 297-307.
[4] Vural, H., Meral, A., Şenyiğit Doğan, S. 2019. Üniversite Kampüs Peyzaj Planlaması Üzerine Kullanıcı Değerlendirmesi: Bingöl Üniversitesi Örneği. Türk Tarım ve Doğa Bilimleri Dergisi. 6(1); 106-117.
[5] Kansas State University. 2012. Landscape Design Guidelines, Campus Master Plan.
[6] Karaşah, B., Sarı, D., Yaman, Y.K. 2016. Bir Yerleşke Peyzaj Tasarımı: Artvin Çoruh Üniversitesi Şehir Yerleşkesi. Erciyes Üniversitesi Fen Bilimleri Enstitüsü Dergisi. 32 (3).
[7] Albert Kahn Assotiates. 2008. City of Tecumseh Business and Technology Campus Design Guidelines.
[8] Office of Facilities and Campus Services. 2011. Pomona College Campus Planning And Landscape Guidelınes.
[9] Shapins Associates. 2003. University Of Northern Colorado Campus Landscape Development Plan.
[10] Arın, Ö. 2010. Bitkisel Tasarımın Görsel Açıdan Değerlendirilmesine Yönelik Bir Araştırma: Bursa Soğanlı Botanik Parkı Örneği. İstanbul Teknik Üniversitesi. Fen Bilimleri Enstitüsü. Yüksek Lisans Tezi.
[11] Erbaş, E. 2003. Peyzaj Düzenlemelerinde Bitkisel Tasarım "Bahçeşehir Doğa Parkı Örneği". İstanbul Teknik Üniversitesi. Fen Bilimleri Enstitüsü. Yüksek Lisans Tezi.