

TRENDS IN LANDSCAPE, AGRICULTURE, FOREST AND NATURAL SCIENCE

EDITED BY

Murat Zencirkiran

Trends in Landscape, Agriculture, Forest and Natural Science

Edited by

Murat Zencirkiran

Cambridge
Scholars
Publishing



Trends in Landscape, Agriculture, Forest and Natural Science

Edited by Murat Zencirkiran

This book first published 2020

Cambridge Scholars Publishing

Lady Stephenson Library, Newcastle upon Tyne, NE6 2PA, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Copyright © 2020 by Murat Zencirkiran and contributors

All rights for this book reserved. No part of this book may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright owner.

ISBN (10): 1-5275-4300-5
ISBN (13): 978-1-5275-4300-3

TABLE OF CONTENTS

Preface ix

Chapter One 1
Ecological Tolerance and Woody Landscape Plants
Doganay Yener, Nilufer Seyidoglu Akdeniz and Murat Zencirkiran

Chapter Two 21
The Evaluation of Green Areas in the Urban Transformation Process in the Context of Sustainability and Urban Welfare: Emek and Aksaray Districts in Antakya (Turkey)
Ilkay Cincin and Elif Bozdogan Sert

Chapter Three 34
The Concept of Gardens for Health
Elvan Ender Altay and Murat Zencirkiran

Chapter Four 45
Analysis of Land Use and Land-Cover Change in Mountainous Areas in Turkey: An Assessment and Mapping of Land Changes Using Landsat Imagery for the Cimen Mountain
Sule Kisakurek, Nese Gulci and Sercan Gulci

Chapter Five 63
Introducing the City to Children, Youngsters, and Tourists via Installation Art: The example of Manchester and an Offering for Ankara
Osman Zeybek

Chapter Six 74
Analysis of a Child-Friendly Universal Place: Besiktas Dilek Sabanci Disabled Park
Hande Sanem Cinar and Nilufer Kart Aktas

Chapter Seven 90
Spatial Perception and the Criteria Used When Describing Urban Spaces
Elvan Ender Altay and Zeynep Pirselimoglu Batman

Chapter Eight 98
Green Corridors as a Part of Green Infrastructure
Sinem Ugur and M. Emin Baris

Chapter Nine 108
An Examination of the Relationship Between Walkability in Transportation and Landscape Architecture
Zeynep Pirselimoglu Batman and Elvan Ender Altay

Chapter Ten 122
The Importance of Cultural Landscape Values on Urban Design
Fusun Erduran Nemutlu and Aysun Celik Canga

Chapter Eleven 129
Urban Identity/Collective Memory/Public Space Relation using the Example of Mevlana Museum
Osman Zeybek

Chapter Twelve 137
Implementation and Evaluation of Meteorological Measurements in Turkey within the Scope of the International Co-Operative Program (ICP Forests) for the Assessment and Monitoring of Air Pollution Effects on Forests
Metin Demir

Chapter Thirteen 146
Landscape Design for Sustainable Historic Places
Aysun Celik Canga and Fusun Erduran Nemutlu

Chapter Fourteen 154
Some Plants from Green Areas that Cause Toxic Effects
Tugba Ustun Topal, Asli Korkut and Tugba Kiper

Chapter Fifteen 173
Eggplant (*Solanum melongena* L.) as a Fruit, Vegetable, and Medicinal Plant
Kenan Sonmez, N. Ebru Kafkas, Beste Gulcur Kaplan, H. Filiz Boyaci, and Sekure Sebnem Ellialtioglu

Chapter Sixteen 193
The Interplay between Hydrogen Peroxide (H_2O_2) and
Nitric Oxide (NO) in The Salt Tolerance of Plants
Fahriye Ocal Ozdamar, Gokcen Baysal Furtana, Sekure Sebnem Ellialtioglu and Rukiye Tipirdamaz

Chapter Seventeen 214
The General Principles of Organic Goat Production
and its Role in Strengthening Sustainability
Muazzez Comert Acar, Yilmaz Sayan, Nedim Kosum and Cagri Kandemir

Chapter Eighteen 228
Antioxidant Mechanism in Post-harvest Fruits that Might Affect
the Human Antioxidant System
Murat Dikilitas

Chapter Nineteen 246
An Overview on the Growth and Physiological Response of Grafted
or Non-Grafted Vegetable Crops under Salinity Stress
Sebnem Kusvuran, Manar Talhouni and Sekure Sebnem Ellialtioglu

Chapter Twenty 269
Basic Concepts for Foam Mat Drying Foods
Inci Cinar

Chapter Twenty-One 293
Biopreservative Effects of Sourdough Fermentation on Mold
Growth in Bread and Bakery Products
Elif Yildiz And Duygu Gocmen

Chapter Twenty-Two 312
The Genetic Background of Nucellar Embryony in Citrus
Ozhan Simsek, Dicle Donmez and Yildiz Aka Kacar

Chapter Twenty-Three 320
Effects of Environmentally-Friendly Pesticides on
Humans and the Environment
Murat Dikilitas, Eray Simsek, Sema Karakas, Abdurrahim Kocyigit, Mehmet Ertugrul Guldur and Parvaiz Ahmad

Chapter Twenty-Four 351
Special Anti-Stress Antioxidant Plants
Nilay Seyidoglu and Cenk Aydin

Chapter Twenty-Five..... 366
Do Plants Talk with Small Non-Coding Rnas?
Saniye Elvan Ozturk

Contributors..... 381

PREFACE

The history of science is the history of humanity, the history of civilization, and the history of development. To establish a connection between what came first and what followed is necessary to build our today and our tomorrow.

If we want to talk about today's trends, we have to connect our past knowledge to today's research and findings. Indeed, setting trends—particularly in science—requires lots of dedication. Just using a technical perspective is not enough, and researchers have to remain in possession of every aspect of life and every level of thinking. The trends in landscape, agriculture, forestry, and natural science center on responsibility because these topics are directly involved in human life and our future.

Our fifty contributors are not only experts in their fields, but also they have experience of working in a multidisciplinary manner. This multidisciplinary view is essential to building our future, both safely and sustainably. For a sustainable world, landscape, agriculture, forestry and environmental sciences play a significant role. However, the preservation of our planet is not enough in this era. We have to heal and improve it for our future followers. As described in an Indian proverb, "we borrowed this World from them".

In this book, as an editor, I have tried to collect different data sets in various disciplines. We hope that we can achieve a holistic approach to our studies in landscape, agriculture, forestry, and natural sciences. *Trends in Landscape, Agriculture, Forestry, and Natural Science* is not only for the experts in these fields, but it also provides a good source for people who want to learn about these topics. This book includes research, studies, and current trends in all of these areas. Our book includes twenty-five chapters prepared by fifty different contributors. We are grateful to them for their invaluable help and expertise. Without them, this book would not have reached its purpose.

THE EDITOR

CHAPTER TEN

THE IMPORTANCE OF CULTURAL LANDSCAPE VALUES IN URBAN DESIGN

FUSUN ERDURAN NEMUTLU
AND AYSUN CELIK CANGA

Introduction

In landscape architecture, natural and cultural resources are the primary inputs for both planning and design practices. While natural resources determine a region's living conditions, local life habits and culture create various surface features together with visual effects. In urban areas, on the other hand, urban landscape characteristics are dependent on time and human activities. This characteristic structure varies dependent on the region and time. Urban areas have been providing civilized living opportunities and centers of art, education, law, politics, defense, and bureaucracy since ancient times.

The first modern cities were established in Mesopotamia in 3500–4000 B.C. These cities have since undergone significant changes (Kavruk, 2002; Pustu, 2006). Even though cities are shaped by different influences in various geographies and cultures, a kind of global influence can be mentioned due to communication speed, unlimited information exchange, and so on. The fact that urbanization is considered to be a measure of civilization affects both the demographic structure and cosmopolitanism; it also creates a tendency to build more housing. Moreover, the most critical factor in a global sense is the fact that urban tourism and recreation are so important. Therefore, cities with rich resources gain economic value and become centers of attraction. As Turkey has witnessed plenty of ancient civilizations, it has abundant resources in this regard. The sustainability of these resources depends on their being used in a conservation orientated manner.

This study presents the importance of identifying the existing state of urban areas' cultural landscape values in order to ensure the conservation of those values; it also explains data generation phases for planning activities. The resource values that determine the cultural landscape are population, communication, transportation infrastructure facilities, history, archaeology, local architecture, handicrafts, holy places, festivals, agricultural activities, common-public education opportunities, educational opportunities for women, monumental objects, and areas to be protected. The data obtained will guide the future planning of the city, the projects to be prepared by private and public institutions, and various landscape architecture practices.

The Concept: "City"

Urban areas should be specific areas that have reached a certain population size both administratively and demographically. Lois Wirth, a noted urban scholar, defines cities according to three factors: population size, density, and heterogeneity characteristics (Yorukan, 2006). However, a cosmopolitan structure can be seen when urban areas are observed through a cultural approach and from a socio-economic perspective. According to Keles, a city, in this respect, is a settlement center where social life is organized according to occupations, distribution of works, and different cultural groups and where institutionalization exists (Keles, 2016). Urban areas cannot be sharply separated from rural areas nor can their social lives be ruptured. Cities, which are in constant motion, are always attractive in terms of business and cultural opportunities and are in constant interaction through concepts such as gentrification.

The physical line between rural and urban areas in terms of economic, social and cultural characteristics; production and employment structures; the transformation of labor; the settlement criteria of the population; and the physical and social circulation of households has started to gain a more transparent character and is strongly predicted to disappear in time (Nerse and Turk, 2017). Urban areas' most significant characteristic is their specific character and defined texture, which stems from the planning and design process. Due to this characteristic, the city gains an identity and becomes meaningful.

The Concept: "Cultural Landscape" and its Components

Culture is a broad concept that covers human habits, experiences, and acquisitions. Cultures differ depending on time and are affected by one another. As for landscape architecture, culture covers any shaping performed by humankind on nature, which includes the effects of humans on physical space, constructional elements, and local daily habits.

UNESCO (United Nations Educational Scientific and Cultural Organization) defines cultural landscapes as "combined works of nature and of man", and as "embody[ing] a long and intimate relationship between people and their natural environment" (URL 1). According to Mitchell (2003), Carl Ortwin Sauer, a physical geographer, first used the concept of cultural landscape in the 1920s. Sauer claims that culture struggles to make changes to the natural landscape in any region (Erduran Nemutlu et al., 2012). Cultural landscapes were described for the first time at the World Heritage Convention, which was organized by the World Heritage Committee in 1992. According to this definition, the cultural landscape is the result of combined acts by humans and nature that develop in parallel alongside social, economic, and cultural forces (URL 2).

Cultural landscapes fall into three main categories. The first one includes the areas designed and created intentionally by man. Most of this category is composed of public buildings. The second category is organically evolved landscapes. The areas that are described as geological heritage make up one of the sub-categories of this group. The third one is defined as an associative cultural landscape, which includes the purely natural formations that have been associated with religious or cultural motives (Bastemur, 2013). The third group is considered to be the most crucial element of the cityscape. The first group is located by the construction of the cities.

Nevertheless, the essential cultural landscape elements of urban areas can be listed as spaces with high visual value, city parks, neighborhood parks, playgrounds for kids, spaces with historical and archaeological importance, archaeological sites and other conservation areas, objects with monumental characteristics, religious spaces and constructions, examples of traditional architecture, folkloric features and traditions, festivals and carnivals, and touristic and recreational places and facilities.

The primary sources and features that relate to cultural landscape practices in urban areas can be listed as follows: space use; physical development of the city; historical development; transportation facilities; educational opportunities; health facilities; demographic structure; and socio-economic structure. Urban identity depends on the cultural landscape's elements and resources. Ensuring the conservation and transfer of these elements reveals the urban character's persistence. Cultural landscape elements change in time and sometimes they are doomed to disappear because they are not being used. It should always be kept in mind that untapped cultural resources are always doomed to perish. Therefore, these elements' present state and resource potential, which forms urban identity, should be adapted to present-day conditions so that they can be used.

Conclusions

In the studies carried out to determine the character of cultural landscapes in different countries, cultural inventories of the areas were determined through various methods, which were then mapped and interpreted. In a study, which was conducted in England between 2007 and 2008, to determine the character of the country's historic landscape, a Geographic Information System (GIS) database was used to specify the elements within the spaces. The AONB (Area of Outstanding Natural Beauty) group prepared a map for Cranborne Chase and West Wiltshire Downs; this specified the general indicators of a historical landscape and marked their positions on a map (URL 3).

Human activities play an essential role in determining the cultural landscape, the change in the landscape's character, and the formation of this character. These activities include space use and management; the structural characteristics of the buildings and dwelling units; and the land's features, such as croplands. According to Wascher (2005), geomorphology, soil structure, and ownership status should be used as criteria to determine cultural landscapes that are individual to different regions. These criteria should be considered in the following stages when mapping:

1- Presenting major settlement textures that have developed and evolved for a specific period and space by conducting studies about people and spaces.
2- Establishing the relations between the elements and textures that constitute the landscape by determining the characteristics related

to people, cultural history, archaeology, and the settlement.
3- Determining the spaces or elements to be conserved (Ozsule, 2005).

The maps and official documents that cover the urban area with the environment around it; its natural structure; present administrative status; and the status of the counties, their settlements, and their development were obtained from related institutions. Maps that indicate the space, the space use, and ownership status of the inhabitants were computerized using ArcGIS software. The city's historical process, archaeological values, historic buildings (mosques, fountains, etc.), demographic structure, and the traditional life that constitutes the cultural texture were obtained from publications and official documents found through a literature search. This data provided a physical analysis of the whole city.

In the second stage, an information form was prepared for local authorities, public employees, academic members, specialists, and local people to determine the area's cultural inventory. The information form asked questions about the area's current living opportunities, such as its physical and structural features; infrastructure; health and transportation facilities; agricultural activities and product range; demographic information; the educational, socio-cultural, and economic status of local people; their customs; handicrafts from past to present; folkloric characteristics; problems encountered in the area; objects with monumental characteristics to be conserved; religious places; tourism facilities; local architectural samples; and the current status of the other historical, archaeological, and cultural resources located in the area. Therefore, the local population's contributions to the cultural landscape were examined. In addition to this, human interventions, which cause changes in the urban landscape, were also questioned.

In the third stage, the verbal data obtained through information forms, which reveal the cultural landscape values in the city's neighborhoods, were analyzed and transformed into numeric information.

An expert group analysis method was used to determine the cultural landscape. The group was formed based on the characteristics of the area, in order to determine the cultural landscape criteria and the inventory of the area (Belknap et al. 1967). These criteria are included in the information and vary according to the area; each item was evaluated as a criterion. In each urban neighborhood, a quantitative assessment was made

based on the criteria. The whole city was examined for each measure and neighborhoods were scored according to their cultural values. The difference among the neighborhoods in terms of their distribution of cultural values is presented, and future urban planning decisions should be made accordingly. The neighborhoods were scored based on if and to what extent each of the criteria was present. For instance, if the neighborhood had no cultural elements apart from buildings reflecting local architecture, then its score would be 1. However, if the neighborhood had historical and archaeological features, religious places, and traditional handicrafts then the score would be 4. The area with the highest score in the same settlement was considered to have the most cultural landscape functions.

In the final stage, a map that indicates the cultural landscape of the settlements and expresses its cultural values in spatial terms was created; this was based on the obtained data (Erduran Nemutlu et al., 2012).

References

Bastemur, C. (2013). Mimar Sinan Rotasının Dogal ve Kulturel Peyzaj İzleri. Doktora Tezi. Ankara Universitesi Fen Bilimleri E.

Belknap, R.K.; Furtado, J.G.; Forster, R.R.; Blossom, H.D. (1967). Three Approaches to Environmental Resource Analysis. Washington.

Erduran Nemutlu, F.; Uzun, O.; Cetinkaya, G.; Dilek, F.; Aciksoz, S. (2012). Determination of the Cultural Landscape Values of Lake Sugla in Turkey. International Journal of Food, Agriculture &Environment – JFAE, 10 (2): 949-955.

Kavruk, H. (2002). Anakente Bakıs. Turkiye'de Anakent Belediyeciligi ve Kent Hizmetlerinin Yonetimi, 25, Hizmet-İs, Ankara.

Keles, R. (2016). Kentlesme Politikası. İmge Kitabevi, Ankara.

Mitchell, D. (2003). Dead Labor and The Political Economy of Landscape-California Li-ving, California Diving, Handbook of Cultural Geography Sage Publication, London. 238.

Nerse, S.; Turk, E. (2017). Kırsal Kentsel İliskilerde Degisim: Yeni Tanımlamalar ve Kavram Okumaya Yonelik Bir Analiz. The Journal of Academic Social Science, 63: 504-525

Ozsule, Z. (2005). Geleneksel Yerlesimlerin Korunması Acısından Kulturel Peyzaj Degerlendirmesi: Mudanya Ornegi. İstanbul Universitesi Fen Bilimleri Enstitusu Doktora Tezi. İstanbul.

Pustu, Y. (2006). Kuresellesme Surecinde Kent "Antik Site'den Dunya Kentine" Sayıstay Dergisi, Sayıstay Baskanlıgı, 60: 129-151.

Wascher, D.M. (2005). European Landscape Character Areas –

Typologies, Cartography and Indicators for the Assessment of Sustainable Landscapes. Final Project Report as deliverable from the EU's Accompanying Measure Project European Landscape Character Assessment Initiative (ELCAI), funded under the 5th Framework Programme on Energy, Environment and Sustainable Development (4.2.2), 150 pp.

Yorukan, T. (2006). Sehir Sosyolojisinin ve İnsan Ekolojisinin Teorik Temelleri, Nobel Yayınları, ISBN:9789755917771, Ankara, 278s.

URL 1: UNESCO, (2007). Cultural Landscape Definition. UNESCO, World Heritage Convention Internet Site. http://uis.unesco.org/en/glossary-term/cultural-landscape (Accessed on: 18.10.2018)

URL 2: UNESCO, (1996). World Heritage Committee Twentieth Session. https://whc.unesco.org/archive/1996/whc-96-conf201-21e.pdf (Accessed on: 15.10.2018).

URL 3: AONB, (2010). Conservation and Enhancement of Natural Beauty. http://www.ccwwdaonb.org.uk/docs/TheHart_Spring10.pdf. (Accessed on 10.07.2012).