A Conceptual Proposal for Ankara's Historical Heritage: Atatürk Forest Farm

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Abstract

Context Established as green infrastructure for the creation of a systematic agricultural structure for the first time in the history of the Republic, Atatürk Forest Farm (AOÇ) is a cultural heritage. AOÇ has the capacity to become a new food planning and management center as well as an urban open space for citizens and to reconstitute Ankara as a self-sufficient city in the 21st century. Objectives This study aims to preserve the AOÇ lands for reevaluating them with an ecological approach in terms of today's conditions. Regarding the AOÇ's founding purposes, this study offers a conceptual proposal for reclaiming and reorganizing the Farm. Methods The methodology involves literature reviews, examination of AOÇ's historical development process and planning decisions, site analysis, and development of a conceptual proposal for the designated study area. Results Urban agriculture (UA) has the potential to modify existing urban sites into new forms of green spaces offering an alternative land use integrating multiple uses. This study proposes conceptually some opportunities for developing AOÇ, which has the potential to become a productive and ecologically sustainable urban green space with offering various UA benefits. Conclusions AOÇ has a significant place and meaning in the collective memory of the Turkish nation and acts as a bridge that carries the past to the future. The farm should be reintroduced to the urban life with new ecological, recreational, and cultural functions by preserving its mission to be an example of a production that fulfills the city's agricultural and nutritional needs.

1. Introduction

Studies have demonstrated that the environment and people in the era of Anthropocene are significantly affected by urbanization (Pincetl, 2017; Barthel et al., 2019; Langemeyer et al., 2021; Elmqvist et al., 2021; Obringer and Nateghi, 2021; Gopalan and Radhakrishna, 2022). The Food and Agriculture Organization of the United Nations (2022) anticipates that by 2050, food production in the world will increase by 70% while the 68% of the world's population will live in urban areas, the necessity of enabling food security and resilient food system will become significant (UN-Habitat, 2020). On the other hand, in urban areas, food insecurity has become stronger because of the COVID-19 pandemic during which the food supply chain has been disrupted, access to food has been hindered due to intensified physical and economic barriers and labor shortages increased crucial food waste (Mardones et al., 2020; Lal, 2020). For this reason, more resilient food systems should be considered, food waste should be reduced, and local food production should be improved. In order to improve resilient urban food production, the Sustainable Food System (SFS) has come forward. As a food system which offers food security and nutrition for everybody by means of considering economic, social and environmental bases that enable food security and nutrition for future generations without concessions, the advantages of the SFS are as follows: (1) providing affordable healthy foods which can compete with low-cost and high-calorie foods; (2) ensuring that all citizens can go to an entire grocery store on foot, by bicycle or by public transport; (3) reducing the environmental impact of food production and transport along with greenhouse gas emissions, water consumption and chemical fertilizer and pesticide usage, and; (4) ensuring local jobs with decent working conditions and salaries (Kisner, 2011; HLPE, 2014; CIAT, 2017).

Global food systems should be fundamentally restructured to reduce the detrimental effects of the current food system and ensuring food security in the future (Shepon et al., 2018). Urban Agriculture (UA) which is defined as crop and livestock goods production within cities and towns through integration into local urban economic and ecological systems, is a remedy that is increasingly seen as a solution to unhealthy and insufficient food production and consumption in cities (Zezza and Tasciotti, 2010). UA systems which are very diverse in size, form, and function, can appear in different types of urban green areas such as public and private gardens, urban orchards,

rooftops gardens, greenhouses, aquaponics, vertical farms, and urban beekeeping (Lin et al., 2017). Different types of UA provide diverse ecosystem structures that contribute to the edible green areas of different types of communities and a wide range of services for different public demands. The ReVision Urban Farm - USA, Melbourne Skyfarm - Australia, Belvedere Agricultural Park - Germany, Passage 56 Community Garden - France, Pier 2 Haven – Denmark; Pasona Urban Farm - Japan; The Houtan Park in Shanghai are just a few examples of inspiring UA projects around the world. Due to its wide range of potential advantages, UA may take a significant part in SFSs (Ackerman et al., 2014). UA covers all three components of sustainability: economics, society, and the environment. Economically, UA minimizes household food expenditure, and improves property values while offering job opportunities. Socially, it strengthens physical and mental wellbeing and social interaction. It also provides opportunities for citizens, especially in underserved areas, to deal with food production and procurement. Environmentally, it enhances biodiversity, reduces urban heat island and urban flood impacts, and decreases the energy used for food transportation. Briefly stated, UA is a key instrument for a sustainable global food system (Viljoen and Bohn, 2014; Russo et al., 2017; Dubová and Macháč, 2019; Diekmann et al., 2020; Skar et al., 2020; Wadumestrige Dona et al., 2021; Salomon and Cavagnaro, 2022).

Atatürk Forest Farm (AOÇ), which has a particular significance and value within the history of the Republic, is a cultural heritage. The Farm which has been established by Mustafa Kemal Atatürk, witnessed many historical events during the Republican revolutions. From the beginning of its establishment, it was an icon of agricultural modernization, education, social life, and industrialization. The marshy grounds near the city center have been reclaimed, and the Farmland has appeared as a productive landscape with new types of recreation and production. The establishment purposes of the Farm can be listed as: (1) developing livestock; (2) improving grains through exploring new species; (3) growing fruits adequate to climate conditions; (4) establishing nurseries and greenhouses; (5) establishing factories and workshops for manufacturing necessary tools and machines for improving agricultural modernization; (6) educating the citizens on agriculture by means of applied and practical courses; (7) providing affordable and healthy food to the citizens, and; (8) socially, creating green open public spaces for entertainment and recreation (Kaçar, 2011; Kimyon and Serter, 2015; Bilgi, 2017; Cinar Ozdil et al., 2020). Unfortunately, in the course of time, most of the Farmland has been destroyed for reasons such as selling by legal means, renting, and judicial decisions. It has been occupied by buildings. It has lost most of its terrain and historical identity because of misuse. Moreover, the Farm is negatively affected by Ankara's rapid urban growth and excessive infrastructural needs (e.g., construction of main transportation roads, water and natural gas pipes, sewerage, energy transmission lines). Therefore, the Farm, which has diverged from its foundation purposes in the course of time, has lost its functions, integrity, and persistency. It is now a wasteland at the center of Ankara.

Established as green infrastructure for the creation of a systematic agricultural structure for the first time in the history of the Republic, AOÇ is a cultural heritage that will set an example in the realization of agricultural activities in the country. In addition, it is a green spine in the middle of the city and has significant potential in terms of the green space requirement of the city. Arapgirlioğlu and Baykan (2016) indicated that AOÇ has the capacity to improve urban agriculture, become a new food planning and management center as well as an urban open space for citizens and to reconstitute Ankara as a productive and self-sufficient city in the 21st century. The purpose of this study is to preserve the AOÇ lands for reevaluating them with an ecological approach in terms of today's conditions. Regarding the study's and the AOÇ's founding purposes, this article offers a conceptual proposal for reclaiming and reorganizing the Farm. As a part of the green corridor system of the city which goes through the Middle East Technical University (METU) forest, Eymir and Mogan Lakes and Imrahor Valley, AOÇ has a significant function. This proposal aspires to design an energetic 'green core' with UA facilities and recreational activities for

the city. The methodology of this study involves literature reviews, examination of AOÇ's historical development process and planning decisions, site analysis related to the Farm, and development of a conceptual proposal for the designated study area by means of data synthesis. The article is designed as follows: Section 2 draws out the research methodology following the introduction. The history and the site analysis of AOÇ are included in this section. Conceptual proposal is offered in Section 3. Section 4 includes a discussion of the findings and a conclusion summary.

2. Materials And Methods

In the first stage, to evaluate the state of the study area from past to present, literature research has been performed and historical documents, reports, and previous studies related to the Farm have been reviewed. Subsequently, basic concepts and best urban agricultural practices of different countries have been studied for developing conceptual proposals. In order to search published and peer-reviewed literature, The Web of Science, ScienceDirect, Wiley Online Library, and Scopus databases were used. "Sustainable Food System", "Urban Food System", "Resilient Food Systems", "Food Resilience", "Food Safety", "Food Security", "Urban Agriculture", "Urban Farm", "Urban Garden", "Community Garden", "Productive Park", "Agricultural Park", "AOÇ", "Atatürk Orman Çiftliği" and "Atatürk Forest Farm" were selected as searching keywords. One hundred fifty-seven relevant articles, books, dissertations, and reports were scanned using keywords. In the second stage, the site is visited to make a site inventory and analyze the study area. Thereafter, the identity and structure of the site and its immediate surroundings are surveyed. The site's problems and potentials are examined. In the last stage, a conceptual proposal which is based on the analysis and the synthesis of the findings, is developed (Fig. 1).

2.1 History of AOÇ

After the collapse of the Ottoman Empire in 1922, the Turkish Republic was founded in 1923. Ankara was announced as the new Republic's capital. The first designed city Ankara was the symbol of a newly constructed nation. The new government was targeting modern civilization principles for enlightened and cultivated people, and social and cultural values were being transformed for modern citizens of this new society. As an attempt to redefine the daily life practices of the citizens, it was aimed to achieve a civilized society with the help of a structured environment. Within this regard, the new regime was introducing modern living environments for redefining the living patterns of the citizens (Kaçar, 2011). For this purpose, the founder of the Turkish Republic, Atatürk, intended to transform Ankara into a green and self-sustaining capital. Atatürk, who intended to create a new society, established AOÇ in 1925 and brought together modern agricultural and industrial production techniques. He combined these techniques with recreational activities and developed a forest farm (Fig. 2). New tools and scientific methods, such as modern irrigation systems, soil reclamation, cultivation of rare crops and afforestation techniques were displayed. At the Farm, it was also introduced the ways of product preservation, information on crops and animal health and technical support for farm machines. AOÇ should be a model for an ideal Turkish village for educating Turkish peasants. It should enable their transformation for being chief practitioners of agriculture in the new society. The Farm was offering internship opportunities to the students of agricultural education, engineering, and veterinary sciences. Additionally, students who wanted to apply to Higher Institute of Agriculture had to study as workers at the Farm for one year. The children of the peasants also had summer schools at AOÇ to learn modern farming techniques. This was an experimental environment, a laboratory for scientifically producing farm goods (Bilgi, 2017).

The Farm, which was established in the infertile and swampy land of Ankara, was expected to be the first example of the reflection of science and technology on Turkish agriculture. It was also the first example of land reclamation with regards to the wetlands on the Farm where only swamp areas and reed beds were. Those swampy areas which had become a malaria threat to the citizens could not be reclaimed for decades. Thus, the rehabilitation of the soil was an urgent issue. As the first phase of the rehabilitation, rainwater and surface water was drained. Then, for making usable the underground water, the site was surveyed. A large-scale irrigation project was carried out. Water structures such as artificial lakes, dams and water channels was constructed. Along with the irrigation network construction, to prevent monoculture, orchards were built up on the alluvial lands (Çavdar Sert, 2017). On the other side, within the drylands of the Farm, forestation works have been conducted and irrigation systems have been constructed. For growing the trees which will be used in the forestation works, a nursery and a greenhouse have been built in the Farm. The purpose was afforesting bare, treeless ridges, and creating green expanses and groves (Açıksöz, 2001). Production and marketing units in almost every branch related to agriculture and livestock can be observed in the structure of AOÇ. These are activities taking place at AOÇ: field crops cultivation (e.g., grains, pulse, meadow-lea, and forage plants), vine cultivation, fruit and vegetable horticulture, ornamental plants cultivation, bovine and ovine breeding, poultry farming, horse breeding, beekeeping, leather trade, and agricultural machinery. In the first years of its establishment, AOÇ was a versatile system in which agricultural and animal products had been produced, processed, packaged, and delivered directly to the public. In order to fulfill the Farm's necessities, the products such as beer, soda, mineral water, vine, milk, and dairy products manufactured at the factories, mill and bakery built on AOÇ land were presented to citizens in the factory stores of AOÇ (Cinar Ozdil et al., 2020). The Farm, which was established on a land of 102.000.000 m^2 in the early Republican period, was fulfilling the food needs of the citizens. Additionally, it was offering contemporary recreational activities such as swimming and sailing in Marmara and Akdeniz pools, watching swimming races in Karadeniz pool, dining in the restaurant, exploring the zoo, learning the Farm history at the museum, listening to the concerts at the music hall and hiking in the forest. Although the Farm was away from the city, it was accessible to everybody due to an effective public transportation network (Kimyon and Serter, 2015; Dinçer, 2017).

AOÇ was established in 1925 as the private property of Mustafa Kemal Atatürk. In 1937, with its grant to National Treasury, it achieved heritage status officially. The Farm was affiliated with *State Agricultural Enterprises Institution*, but afterward, it was included within the *State Production Farms General Directorate*. In 1950, AOÇ became a corporate establishment affiliated with the Ministry of Agriculture. AOÇ has lost more than half of its land property and land unity because of various laws enacted between 1950–1983. Those lands were illegally transferred or sold to various public institutions. In 1992, AOÇ was declared as 1st degree Historical and Natural Site by the Higher Conservation Board of Cultural and Natural Assets. Along with this declaration, the Conservation Board's decisions interrupt plunder and pillage attempts over AOÇ for a while. But it did not prevent unlicensed and unauthorized constructions within the land. *The Law for Amending Foundational Law of AOÇ* amendment, which was enacted in 2006, led to the giving of the Farm to the Ankara Metropolitan Municipality and *making upper-scale plans and development plans for conservation purposes and accordingly every kind of development plan* authority. Thus, the existing agricultural areas in the AOÇ land have become dysfunctional, and construction permits have been issued in many of these areas because of wrong decisions and subsequent unplanned urbanization. In this period, not only areas haven't been loss but also registered historical buildings constructed in the earl period of AOÇ's establishment are destroyed. Since 2013, two large-scale projects were conducted in AOÇ lands illegally and unplanned. The first one is Ankapark Theme Park which is abandoned today is a 2.170.000 m^2 entertainment area with its thematic game tents, funfair, roller coaster, excessively enlightened ornamental pool, food and beverage facilities and service areas. The second is the Presidential Complex, for which Marmara Mansion and Marmara Hotel, two heritage

buildings were destroyed, has 1750 rooms, two mosques, a presidency mansion, management area, conference building, guest house, and service areas. At this point, it is observed that the political will, instead of protecting and developing this national heritage which is one of the milestones of the Republic of Turkey, heads the process of pillaging the Farmland. In consequence, to take urban growth under control, AOÇ, which was managed inadequately, couldn't be kept as public property (Yıldırım, 2004).

2.2 The Study Area

In this research, the study site is considered as the Farmland around Ankara Stream and the region where the agricultural practices continue, and it is aimed to reevaluate the site with an integrated ecological approach (Fig. 3). For this reason, some of the urban area surrounding the farm is included in the study site to the extent deemed necessary. The study site is located in the east-west direction in the center of Ankara and is situated between Eskişehir and İstanbul Highways, surrounded by mixed-use development on the north and west. On the east, there are Ulus historical city center and Bahçelievler Housing Cooperative, Ankara intercity bus terminal, METU, Bilkent University and Hacettepe University campuses in the southern direction. The Farm, which is located at the intersection of important transportation axes, is easily accessible by public transport from anywhere in the city. Additionally, from the south of the suburban site line, interprovincial train line, and high-speed rail line are passing. In the site, there is a historical Gazi train station that carries the characteristic of the First National Architectural period. On the site, there is also the wine factory which is another early Republic period building. The wine factory, which was also manufacturing honey and fruit juice, was abandoned after its manufacturing ceased. The abandoned building was reopened in 2010 after the restoration works as AOÇ Museum and Exhibition Hall.

At the site, the steppe climate prevails. The summers are hot and dry; the winters are cold and snowy. The average summer temperatures are 30,2°C (July) and 30,4°C (August). The average winter temperatures are − 3,2°C (January) and − 2,3°C (February). The annual precipitation is 391,9 mm. May (average 51.5 mm) and April (average 42.5 mm) are the months with the most rainfall (TSMS, 2021). On the site, there is Ankara Stream which flows in the east-west direction. The green lands and forests that run parallel to the stream positively affect the site and create microclimate. The area where the AOÇ is located is 1–2°C lower than the city center (Bilgili, 2009). The farm creates air circulation in the windiest part of the city and meets the fresh air needed in the city. Also, it establishes a buffer zone for the city, which prevents poisonous gas from coming the industrial region through the prevailing North-Northeast wind.

Located in the Central Anatolian Region, Ankara shows the characteristics peculiar to Iran-Turan phytogeographical region. Due to its climate and geomorphologic features, its vegetation cover is steppe. Between the years 2010–2011, Hasan Atabaş, who is a nature photographer, conducted a photographic documentation project called *AOÇ's Wildflowers* in the region. Within this documentation, he photographed 260 wildflowers and classified the samples taken from the site according to their family, type, and species with the consultancy of the Gazi University Department of Botanic. Some of the species identified include *Astragalus melanophrurius*, *Acroptilon repens, Adonis aestivalis*, *Ajuga chamaepitys, Anchusa stylosa, Allium atroviolaceum, Carthamus tinctorius, Centaurea solstitialis, Cerastium perfoliatum, Cirsium arvense, Consolida regalis, Convolvulus galaticus, Datura stramonium, Descurainia Sophia, Erodium cicutarium, Fumaria officinalis*, *Heliotropium hirsutissimum, Hibiscus trionum, Lamium amplexicaule, Lotus corniculatus, Lycium depressum, Lythrum salicaria, Onobrychis oxyodonta, Papaver rhoeas, Salvia sclarea, Stellaria media, Turgenia latifolia*, and *Ziziphora capitata* (Atabaş, 2014). The AOÇ is an homage and migration spot for certain bird species, including *Corvus corone*, *Columba livia*, *Pica pica*, *Passer monranus*, *Erithacus ribecula*, *Fringilla coelebs*, *Dendrocopus syriacus*, *Psittacula krameria*, and *Parus major*. Additionally, AOÇ is on the migration route of *Ciconia ciconia* species (Çavdar Sert, 2017).

Ankara Stream, which flows within the boundaries of the Farm, is the most crucial water resource of Ankara. From the early 1950s, the AOÇ stream region supplied the water needs of industrial buildings situated on AOÇ land. But domestic wastewater being discharged to Ankara Stream without sewage treatment caused high levels of pollution in the stream. As a result, many of the wells were closed, and the underground water system was affected. The pollution of the Ankara Stream and the fragmentation of productive lands have resulted in decreasing agricultural production since 1990 (Saydam Eker and Ozkan,2017). Today, the land used for agricultural production such as wheat, dry clover, pasture grass and green clover and livestock breeding covers small portions of the total land. AOÇ products stores which have operated since 1991, have a significant share in the food industry sector. AOÇ products are supplied to the public by means of national and local chain stores, institutions that carry out mass consumption, and the management's stores.

3. Results

The purpose of this study is to develop AOÇ as part of Ankara's green space network regarding conclusions of site analysis and the examination of international best practices. In order to develop AOÇ, productive lands which would contribute city's food production will be created as well as public spaces that would encourage public interaction by respecting the historical heritage of the Farmland. Urban character areas are essential for delivering contextually responsive design. They allow the decision-makers to understand and respond to the unique qualities of any particular site so that distinctive components of an area's character produce a distinct visual sense of place. In that way, the areas differ from another. Within this context, the study site is divided into six-character areas with distinctive identities (Fig. 4).

- ***Research and Training Area***

The Turkish Seed Gene Bank and various research institutes affiliated with the Ministry of Agriculture and Forestry are situated in the northern part of the Farmland (i.e., Soil, Fertilizer and Water Resources Central Research Institute, Field Crops Central Research Institute, Biotechnology Research Center, Plant Health Central Research Institute and Ankara Food Control Laboratory Directorate). It is proposed to establish a *Research Institute for Sustainable Agriculture System*s, which is designed to obtain the maximum advantage from existing soil nutrient and water cycles, energy flows, beneficial soil organisms, and natural pest controls, to the west of the region. Environmental damage can be avoided or reduced by making use of existing cycles and flows. Sustainable agriculture systems are based on the precautionary use of renewable and recyclable resources (Chel and Kaushik, 2011). The institute proposed in this study aims to conduct research on sustainable agricultural technologies and practices, provide a facility for training farmers and other stakeholders on sustainable food production, and support them in selling their products in *Fresh Fruit and Vegetable Wholesale Market* within the commercial area. It is also proposed to establish an *Educational Farm* to provide interactive learning opportunities for trainees and a *Research Center for Future Landscapes* for generating knowledge and solutions regarding the global challenge of sustaining and restoring natural ecosystems in modified lands. This research center will also support people and communities to create more sustainable landscapes. In order to achieve these goals, cooperation with universities, related faculties, and schools at all levels should be enabled in terms of transferring knowledge, experience, practice, and internship and developing new research projects.

- ***Management and Agricultural Area***

It is proposed to establish a *Management Office* where the General Directorate of Agricultural Enterprises and the historical train station are located. The Management Office will be responsible for the overall organization and management of the Farm. A *Visitor Center*, which will cooperate with the existing AOÇ Museum and Exhibition Hall, is also proposed to offer a welcoming environment to the visitors. In this center, visitors can learn about the history of the Farm and get general information on the Farm's amenities and reservation services. Also, at the entrance of the center, there will be an electric scooter and bike-share rental station. Remaining cultivated land which will include a greenhouse, an apiary site, farming fields, storage buildings and temporary farm worker houses, will be preserved as an economic and environmentally valuable resource. It is also proposed to build a rainwater harvesting system to collect, filter, and distribute water into the landscape of AOÇ.

- ## *Wetland Park*

Ankara Stream passing through the study area will be rehabilitated and turned into a wetland park. In order to purify the water for agricultural practices, the stream should be treated by biological denitrification filter systems (Burghate and Ingole, 2014; Jin et al., 2015; Thakur and Medhi, 2019). The concrete streambeds should be removed, and constructed wetlands and riparian buffer strips should be established to restore the natural morphology of the stream and flood protection and provide recreational activities for citizens. On the other hand, the construction of vegetated floating islands would provide water quality filtration. Phytoremediation, which is the in-situ use of plants and their associated microorganisms to degrade, contain or render harmless contaminants in soil or groundwater, is proposed reclamation of contaminated groundwater and soil in the site (Jaswal et al., 2022). For phytoremediation, plants that have heavy metal accumulation capability should be used. The native species, including *Betula pendula, Fraxinus angustifolia, Acer pseudoplatanus, Quercus ilex, Robinia pseudoacacia, Aesculus hippocastanum, Populus tremula, Salix babylonica*, and *Pinus nigra* could be planted as hyperaccumulator plants (Özbek, 2015). It is also proposed to establish a *Food Forest* along the stream. Food forests, which are one of the efficient ways of food production in the cities, can support food security by mimicking natural forest ecosystems with various edible plants such as fruits, nuts, vegetables, mushrooms, and medicinal plants. The proposed Food Forest will improve food security, quality of life, and ecosystem services in the city (Clark et al., 2013; Bukowski and Munsell, 2018; Albrecht and Wiek, 2021). The proposed food forest includes *Pyrus communis, Prunus armeniaca, Prunus avium, Prunus cerasus, Juglans regia, Prunus amygdalus, Cydonia vulgaris, Prunus persica, Morus alba, Morus nigra, Rubus idaeus, Rubus fruticosus, Malus domestica*, and *Prunus domestica*. As stated before, there are several species of wildflowers that grow natively on the Farm. In order to provide floral resources, nesting sites, and a protected environment for hundreds of bee species, butterflies, birds, and other native wildflower meadows, which are eco-friendly landscape components, should be created. These wildflower meadows will have minimum care requirements once established (Vega and Küffer, 2021).

- ## *Commercial Area*

In order to support healthy and affordable food produced in the city, a commercial area is proposed. For this purpose, the existing Ankara Metropolitan Municipality's *Fresh Fruit and Vegetable Wholesale Market*, which is located near the stream, will be preserved. This facility will be expanded by including a market square and a store where AOÇ Farm products will be sold. This commercial area will not only be a place connecting farmers and consumers but also will host various cultural events and activities which especially will be about healthy diets and food. This extensive area will be a welcoming and inclusive space that offers visitors a range of fresh and organic food stalls and a seating area with picnic tables under the trees.

- ***Cultural Area***

It is proposed to establish a cultural area including *Atatürk Cultural Center* and *Başkent Public Garden*, which are adjacent to *19 Mayıs Sports Complex* and *Gençlik Park*. *19 Mayıs Sports Complex* is a significant public space for sports events and ceremonial facilities, while *Gençlik Park* is one of the city's cultural hubs with its museums, art galleries and theaters. An *Open-air Venue* is proposed to offer live music performances, craft stalls and a variety of food beverage vendors. The venue is planned to be used for harvest festivals, exhibitions, and special events accompanied by restaurants and play areas for children.

- ***Community Engagement Area***

The local government can offer various hands-on workshops, free programs, and seminars for citizens at the *Community Center* that includes *Outdoor Classroom* for raising community awareness on healthy diets and food. In this Center there will also be trainings on where the food comes from and how it is produced. On the other hand, Non-Governmental Organizations (NGOs) can use this Center for various events to encourage citizens to benefit from the Farm and make a significant contribution to the Farm sustainability. Incorporation of edible green infrastructure into the Farm is a way to reach healthy food within a sustainable local food system. This incorporation has the potential for: (1) raising awareness for fresh, safe and locally produced food that people can harvest for free; (2) providing healthy eating habits, and; (3) providing social interaction opportunities (Russo et al., 2017). The edible green infrastructure proposals are as follows:

- *Community Garden*: It is proposed to establish a garden for improving the nourishment and well-being of the citizens, strengthening social networks and providing education on food. The garden will also be used as a means of youth education and development with the implementation of youth gardening programs which will offer an effective engaged learning opportunity. Due to these trainings, access and consumption of healthy foods and increased environmental attitudes will be improved (Draper and Freedman, 2010; Savoie-Roskos et al., 2017; Delia and Krasny, 2018; Rogers, 2018; Overbey et al., 2021).
- *Outdoor Kitchen*: It is proposed to provide a place where different events and programs, including fresh herbs and vegetables, can be organized directly from the community garden. There should be a small-scale composting site for recycling garden and kitchen waste.
- *Edible Playground*: In order to teach children about growing and eating healthy food and providing them with deeper knowledge of where and how the food is produced, there should be an engaging multi-sensory place. This may help children develop a skill for understanding, awareness, and appreciation of nature (Otto and Pensini, 2017).
- *Horticultural Therapy Garden*: The suggested therapy garden can facilitate the interaction of mentally, physically, and emotionally challenged people with the healing elements of nature. It is proposed to establish a garden comprising two sections; one for people with Dementia and Alzheimer’s disease and another for people with Autism and other developmental disabilities (Edwards et al., 2013; Tobin et al., 2014; Uwajeh et al., 2019; Scartazza et al., 2020).

4. Conclusion

Feeding a projected global population of nine billion people will be one of the most oppressive challenges of the 21st century. This fact makes global food security an increasingly important issue. Since 2019, the COVID-19 pandemic has had an unprecedented impact on food security around the globe. In order to prevent the spread of COVID-19, many countries implemented strict lockdown measures, which not only hindered the movement of local and migrant workers but also disrupted the supply chain of urban farmers' market. This caused severe damage to the food supply of many countries and cities (Yan et al., 2022). UA, which has become a popular topic in the field of agricultural research as an advanced form of agricultural development, is considered as an alternative agricultural movement. It proposes shifting toward more ecologically sustainable agriculture than the conventional paradigm of large-scale, highly industrialized agriculture (Krishnan et al., 2016). To ensure the development of sustainable urban futures, it is crucial to fulfill conditions such as fresh food production, urban revitalization, public health, and social well-being, which are the benefits of agricultural practices. Cities implementing UA practices can control their food supply and contribute to the ecosystem for the sustainability of their region (Abelman et al., 2022).

From backyard gardens to the scaling up of urban farms, UA has effectively become an infrastructural project that has the potential to modify existing urban sites into new forms of green spaces offering an alternative land use integrating multiple uses. Within this context, due to its potential in the green area system of the city, AOÇ has a vital role in the city. This study proposes conceptually some opportunities for developing AOÇ, which has the potential to become a productive and ecologically sustainable urban green space. Thus, it offers various UA benefits such as: (1) creating landscapes for producing and sharing together and public spaces for encouraging community interaction; (2) enabling to access to fresh and locally produced foods and improving the local economy; (3) strengthening the relationship between local farmers and consumers; (4) offering sustainable agriculture research and training programs; (5) providing access to nature through creating open public spaces, and encouraging physical activity, public health and wellbeing; (6) offering nature walks for the citizens through the walkway and cycling trails along with bird-watching experiences; (7) providing access to urban agriculture and other recreational activities for disadvantaged people; (8) creating ecological landscapes for providing a habitat for biodiverse species and other environmental benefits, and; (9) designing green and blue infrastructure to support climate-resilient landscapes.

AOÇ has been established as the first urban agriculture model focusing on nutritional self-sufficiency. The purpose was to overcome the agricultural and livestock underdevelopment, to increase product diversity and productivity through inserting science and technology in the production, to establish research and development units for organizing the improvement of the production, to pioneer the rehabilitation of unused tracts of land and to present an example of how to increase the productivity by using the irrigation system of reclaimed swamps and reeds with the modern technology of its establishment period. It was targeted to create healthy generations and generalize recreational activities for a new modern social lifestyle in the era of Republican. In 1937, in accordance with Atatürk's will, the Farm was granted to the nation. Although the Farm was tried to be protected by laws and regulations, the pressures on land have never ceased. The Farmland has been fragmentized and has lost its soil in the course of time. Insufficient development plans, land transfers, and occupations due to the inadequate urban plans, uncontrolled social and spatial growth of the city, and rapid increase of the population caused this fragmentation and loss. AOÇ was established as a vital component of the modernization project of the newly founded Republic. It has a significant place and meaning in the collective memory of the Turkish nation, and as a cultural heritage, it acts as a bridge that carries the past to the future. The farm should be reintroduced to the urban life with new ecological, recreational, and cultural functions by preserving its mission to be an example of a production that fulfills the city's agricultural and nutritional needs. Legal arrangements regarding the protection of

the remaining AOÇ lands and the prohibition of actions that will allow any misuse or construction thereafter must be made.

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Competing Interests

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Figures

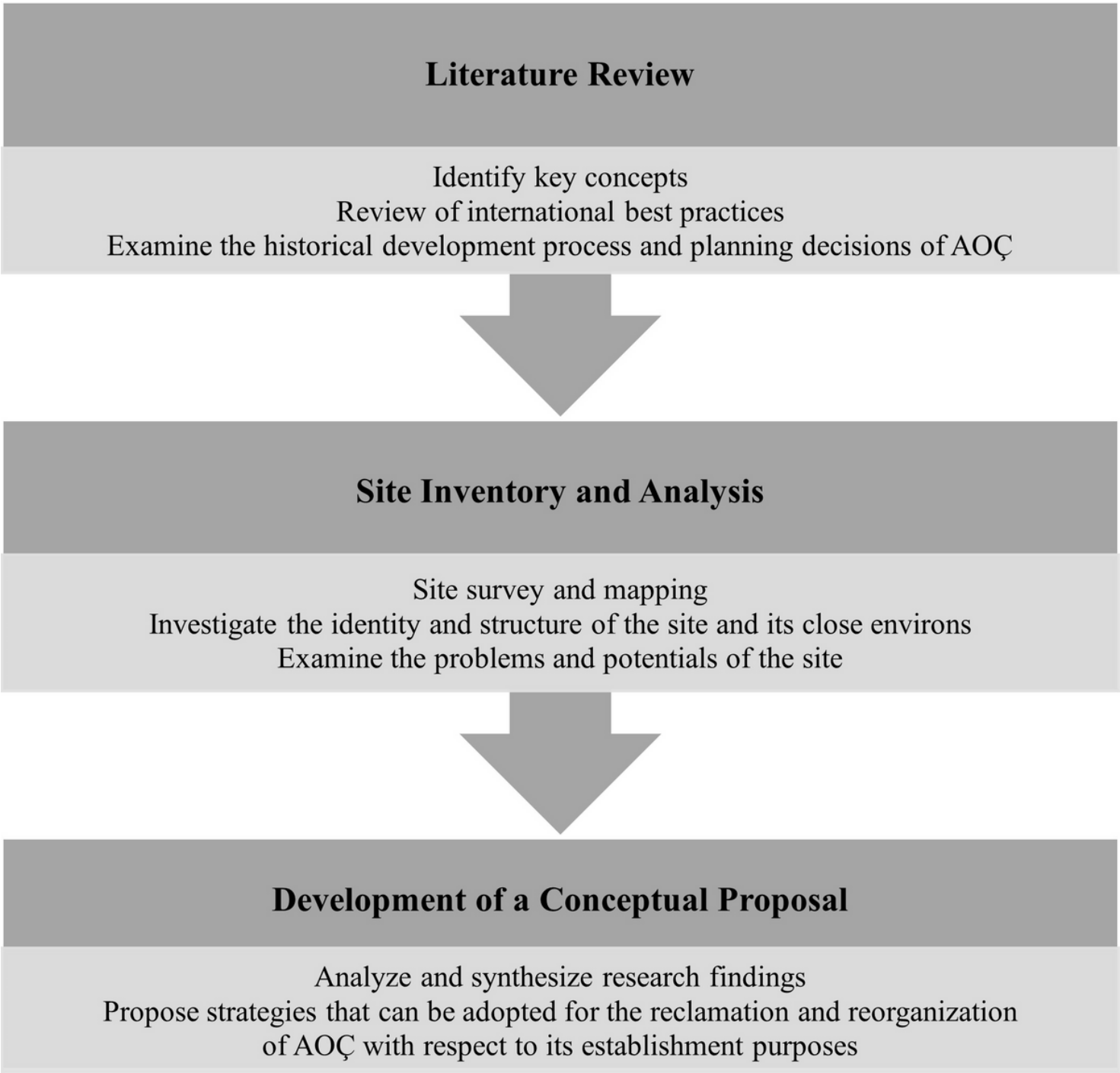

Figure 1

The Research Methodology

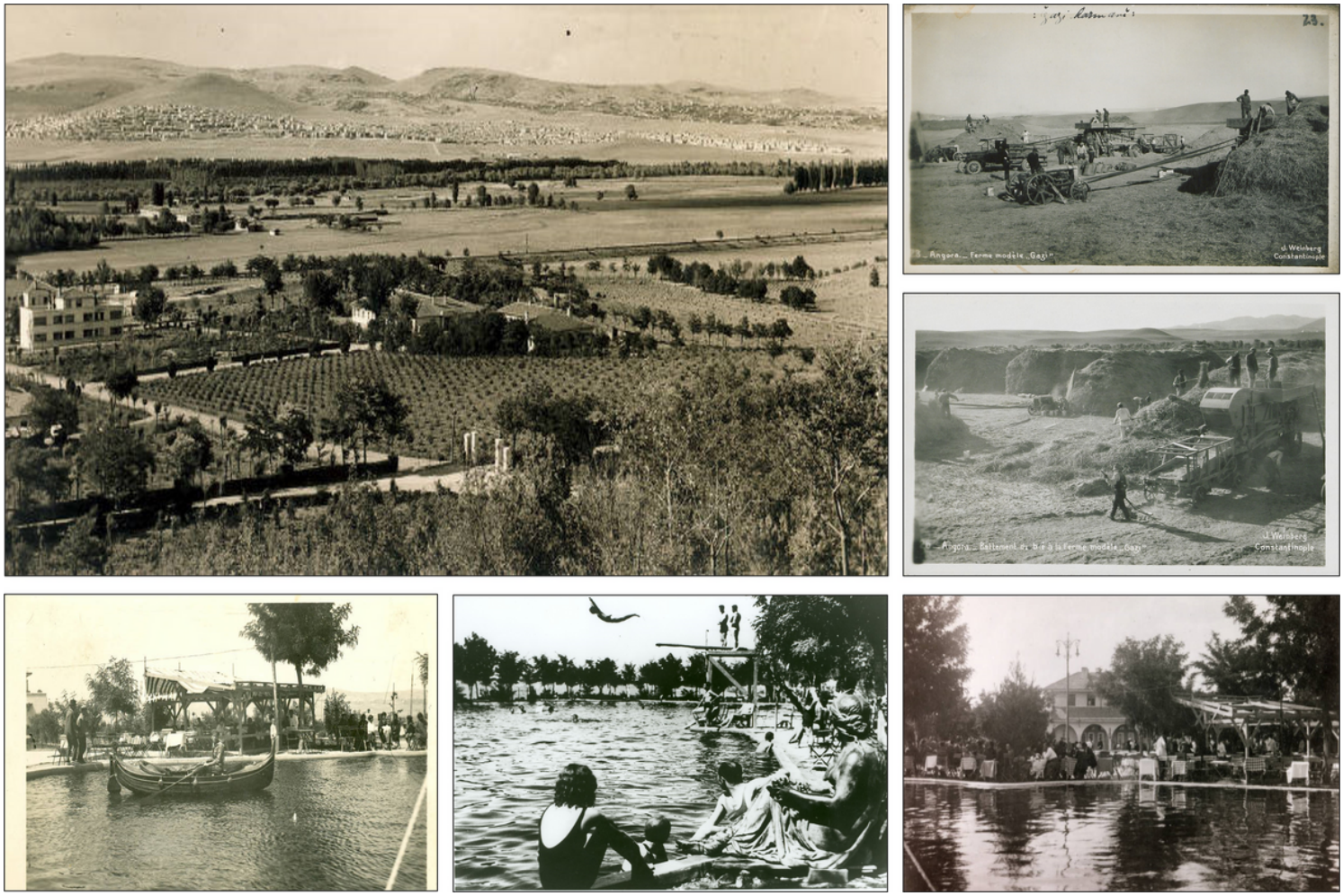

Figure 2

Old Photos of AOÇ (Source: Vehbi Koç and Ankara Research Center - VEKAM)

1. Etlik Specialization Hospital (under construction)
2. Gülhane Education and Research Hospital
3. Demolished Site
4. ANKAmall
5. Ankara Metropolitan Municipality Wholesale Food Market
6. 112 Emergency Call Center Manager
7. DSI (General Directorate of State Hydraulic Works)
8. Atatürk Cultural Center & Başkent Public Garden
9. 19 Mayıs Sports Complex
10. Gençlik Park
11. Turkish State Cemetery
12. The Presidential Residence
13. Wonderland Eurasia Amusement Park
14. The State Railways of the Republic of Turkey Warehouse Directorate
15. Ataturk Forest Farm Administrative buildings & AOÇ products store & Nursery, Ornament and Agronomy Showroom
16. Forest Management Nursery
17. Ataturk Forest Farmland
18. Ministry of Agriculture and Forestry, Central Research Institute for Field Crops, Turkish Seed Gene Bank
19. Soil, Fertilizer and Water Resources Central Research Institute
20. Ministry of Food, Agriculture and Livestock - Food Control Laboratory
21. Historical train station
22. Fruit Juice and honey factory
23. AOÇ Museum & Exhibition Hall
24. General Directorate of Agricultural Enterprises
25. Dairy Plant
26. Atatürk House Museum
27. Ankara Metropolitan Municipality
28. Picnic Area
29. Historical Bridge
30. Akköprü
31. Ankara Directorate of Provincial Agriculture And Forestry

N

Main Road
Metro Line
Suburban Train Line
Stream
Başkentray Station
Central Train Station
Metro Station
Bus Stop
Pedestrian Bridge

Figure 3

The Study Area (Source: Google Maps, 2022)

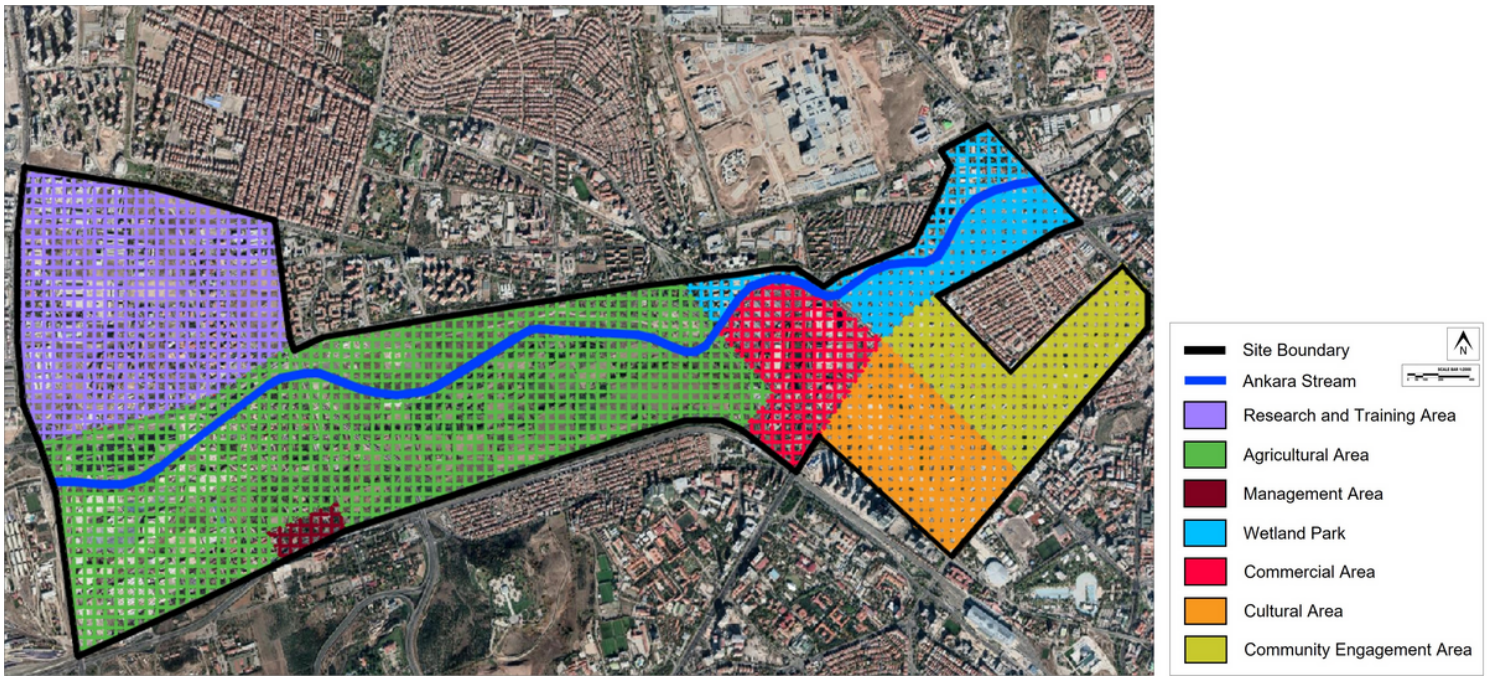

Figure 4

Conceptual Proposal Showing Character Areas