

A PROPOSAL FOR THE PRESERVATION AND INTEGRATED  
PRESENTATION OF ARCHAEOLOGICAL AND NATURAL RESOURCES IN  
THE CASE OF METU CAMPUS AREA

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## ABSTRACT

### A PROPOSED APPLICATION FOR THE PRESERVATION AND INTEGRATED PRESENTATION OF ARCHAEOLOGICAL AND NATURAL RESOURCES IN THE CASE OF METU CAMPUS AREA

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The subject of presentation of archaeological resources is still a developing concept in Turkey. The concepts of educational value and concern, needs a more common recognition and more practice in this context. The same statement goes for the management of natural resources. However, proper public presentation of archaeological and natural resources and public education in those is crucial for the protection of these resources. Moreover, an integrated presentation, approaching the archaeological resources within their natural environment, is required for sustainability, a better preservation and interpretation of the resources.

In this sense, this thesis proposes an application; a trail system for the integrated presentation of the archaeological and natural resources in the case of METU Campus Area in Ankara, Turkey. In this way, it aims to ensure the preservation of the resources by raising awareness through good interpretation and education.

Keywords: Archaeological and Natural Resources, Integrated Presentation and Interpretation, Education, METU Campus Area, Education Trail



## ÖZ

### ARKEOLOJİK VE DOĞAL DEĞERLERİN KORUNMASI VE BÜTÜNLEŞİK SUNUMU İÇİN ODTÜ KAMPUS ALANI ÖRNEĞİ'NDE BİR UYGULAMA ÖNERİSİ

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Arkeolojik kaynakların uygun ve yeterli bir biçimde sunumu Türkiye’de halen gelişmekte olan bir konudur. Bu konu kapsamındaki eğitsel değerler ve kaygılar, kabul görmeye, yaygınca tanınmaya ve daha çok uygulamaya ihtiyaç duymaktadır. Aynı durum doğal kaynakların yönetiminde de geçerlidir. Oysaki arkeolojik ve doğal kaynakların uygun ve yeterli bir biçimde halka sunumu ve halkın bu kaynaklar hakkında eğitimi, bu kaynakların korunması için kritik bir önem taşımaktadır. Ayrıca, arkeolojik kaynakları bulunduğu doğal çevre çerçevesinde değerlendiren, bütüncül bir yaklaşım, kaynakların sürdürülebilirliği, daha iyi yorumlanması ve korunması için gereklidir.

Bu bağlamda, bu tez, ODTÜ Kampus Alanı (Ankara, Türkiye) içerisinde yer alan arkeolojik ve doğal kaynakların bütünsel bir sunumu için bir uygulama, bir parkur sistemi önermektedir. Böylelikle, yeterli bir yorumlama ve toplumun da eğitimiyle bilinçlenme artırılarak, bu kaynakların korunması amaçlanmaktadır.

Anahtar Kelimeler: Arkeolojik ve Doğal Kaynaklar, Bütüncül ve Yorumlayıcı

Sunum, Eğitim, ODTÜ Kampus Alanı, Eğitim Parkuru

To all of the members of my big family

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## CHAPTER I

### INTRODUCTION

#### 1.1. Definition of the Problem and the Question

“There is a pressing need to educate contemporary society if the fragile database is not to be lost”<sup>1</sup>

The main underlying problem behind the other topics in the scope of this thesis is the loss of archaeological and natural resources, if the big picture is considered. This is the ultimate problematic result caused by a chain of reasons, some of which this thesis is concerned: the inadequate presentation and interpretation of the archaeology and nature to the public, together with the lack of proper informal education in both. In addition, the lack of an integrated approach in the non-urban context and where possible, is named as another one.

The reasons for the cause problem are varied. The main reason is that proper public presentation as well as a proper way of interpretation of these resources is a developing concept for the world and even more so for Turkey. According to Eres<sup>2</sup>, it is the last two decades when the issue of presentation has been discussed and some successful and unsuccessful applications have been tried.

METU Campus Area is a very valuable green space with diversity of habitats it provides inside the city, and with listed archaeological and natural sites in it. However, not all of the METU population is aware of this rich multi-context environment, and benefit from it. Although there is a growing awareness on the importance of presenting archaeology as mentioned above, there are not any practical implementations of an integrated approach in the presentation of archaeological and

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<sup>1</sup> Stone, 1997: 27

<sup>2</sup> Eres, 2002

natural resources in Turkey. There are legal statuses for the area protection for both resources<sup>3</sup> but they are not always operating in practice as it is thought to be in theory. This shows us that legal designations are not enough and should not be the only tool for the preservation.

Security through obscurity, a principle used in computerized environment security and cryptography, does not work with the archaeological resources. The more people are away from and unaware of these resources the more the chance of their survival decreases since their loss will not be noticed.

In this sense the informal education of archaeology and environmental aspects is crucial to protect these resources. An integrated approach to present and link these resources would even be a more useful tool that should be applied where applicable.

## **1.2. Purpose and Scope**

The main aim and purpose of this thesis is to propose a practical application on METU area case for the integrated presentation and preservation of archaeological and natural resources, and make use of the role of education in doing so.

Therefore, in broader and theoretical sense, the scope includes the role of public awareness and education in the integrated preservation and protection of cultural and natural resources, whereas, more specifically, the thesis questions and searches for the practical demonstration of interpretive presentation applied on the METU case and suggests a trail system. It is also specific in many other contexts. First of all the thesis is about the presentation and education in the outdoors, as park context for instance, among others such as archaeological sites, museums, schools, research centres etc.

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<sup>3</sup> The designation statuses are defined and described in the Preservation of the Cultural and Natural Assets Law numbered 2863.

Secondly, it includes the public education instead of a formal national curricula. Stone <sup>4</sup> states that there is a confluence of four approaches to the interpretation and presentation of the past:

- Academic and theoretical archaeology,
- Indigenous views of the past,
- School history,
- The past as presented to the general public in the museums and “historic sites”.

The scope of this thesis is on the past that is presented to the general public. On the other hand, it well fits for the extracurricular activity at schools. Informal learning may well embrace the site visits by school tours. Furthermore it is different than the academic interpretation of data in terms of the discourse and concerns which relate to the topics chosen.

Public presentation of archaeology is often correlated and being closely related to indigenous dynamics as an ethical implication. However, neither the scope nor the aim of this thesis involves indigenous dynamics in archaeology and natural resources although it is one of the most important issues when it comes to interpretation.

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<sup>4</sup> Stone, 1997: 23

## CHAPTER II

### BACKGROUND

#### 2.1. Conceptual Framework and Practical Implications of Interpretation and Presentation

##### What and Why?

ICOMOS Charter for the Interpretation and Presentation of Cultural heritage Sites, to clear away the intermixing of the two, defines the terms *interpretation* and *presentation* as below:

*Interpretation* refers to the full range of potential activities intended to heighten public awareness and enhance understanding of cultural heritage site. These can include print and electronic publications, public lectures, on-site and directly related off-site installations, educational programmes, community activities, and ongoing research, training, and evaluation of the interpretation process itself.<sup>5</sup>

*Presentation* more specifically denotes the carefully planned communication of interpretive content through the arrangement of interpretive information, physical access, and interpretive infrastructure at a cultural heritage site. It can be conveyed through a variety of technical means, including, yet not requiring, such elements as informational panels, museum-type displays, formalized walking tours, lectures and guided tours, and multimedia applications and websites.<sup>6</sup>

According to Tilden, who is one the first to define *interpretation*, it is “an educational activity, which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information”<sup>7</sup>. He then conceptualizes it into two

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<sup>5</sup> ICOMOS, 2007; 3

<sup>6</sup> ICOMOS, 2007; 3

<sup>7</sup> Tilden, 1957

simple statements; “interpretation is the revelation of a larger truth that lies behind any statement of fact”, and “interpretation should capitalize mere curiosity for the enrichment of the human mind and spirit”.

Despite the fact that the ICOMOS Charter document refers to cultural heritage sites, the definitions can easily be referred to natural heritage sites. In addition, another difference between the two definitions, apart from a time of fifty years, the latter definition (by ICOMOS) is a more comprehensive set of activities and actions, whereas for Tilden, it is a first hand experience activity that involves illustrates media. Moreover, it can be seen that the ICOMOS document as a whole refers to a wide range of issues including management and planning decisions and processes, on-site interpretation activities, and evaluation of a cultural heritage site.

Jameson<sup>8</sup> claims that, “the ultimate relevance of public interpretation and outreach programs lies in the ethical responsibility among professional archaeologists to make the past accessible and to empower to participate in a critical evaluation of the pasts that are presented to them”.<sup>9</sup> Besides that ultimate relevance, another important *raison d’etre* of public interpretation and education is to raise awareness as a means of protecting the resources. As to discuss public interpretation in environmental protection context, the protection concern gets ahead of ethical relevance.

### **From Theory to Practice and Principles to Application**

When interpretive design is concerned, there is a very basic principle of interpretation that the language should be simple, discourse straightforward, and complex issues should be avoided. As Lee-Davis<sup>10</sup> puts it; although we should not underestimate the public’s ability to understand the most complex of ideas, “the result of archaeological research often cannot be directly presented to the public”.

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<sup>8</sup> Jameson, 1997: 14

<sup>9</sup> See also Lee-Davis, 1997: 86

<sup>10</sup> Lee-Davis, 1997: 86

She<sup>11</sup> illustrates this idea with a project named “*a numerical taxonomy of southern Maryland redwares based on paste and glaze attributes*” and adds that many people wouldn’t have the necessary “cognitive framework to evaluate and make it meaningful”. This can be ensampled under the “past that is locked up intellectually”<sup>12</sup>. Moreover, there is also the concern not to distract or “bore” visitors with solid facts that fall under point of interest of archaeologists. Therefore, according to Lee-Davis,<sup>13</sup> for “public interpretation to be effective”, the differences between the motivations and goals of the visitors – which refer to the audience stated above – and the archaeologists should be understood carefully. It is the same for the nature interpretation.

Archaeologists should engage the general public in dialogues about why we should care about and preserve the past; this is essential ... to developing a supportive constituency.<sup>14</sup>

## **The Spatial Context Where Archaeological Interpretation Takes Place**

### Museums

Ambroise and Paine<sup>15</sup> draws a very simple and illuminating explanation to interpretation in museum: “explaining an object and its significance”. And yes the object plays the leading role in a museum. It is most commonly the object being interpreted, if else, it is through an object. After defining the aim of the interpretation the museum can chose to use different interpretation techniques or media, in other words, the museum can chose the presentation of the interpretation. Some of these media are listed as in Table 1.1.

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<sup>11</sup> Lee-Davis, 1997

<sup>12</sup> Hodder, 1991: 7

<sup>13</sup> Lee-Davis, 1997: 86

<sup>14</sup> Jameson, 1997: 17

<sup>15</sup> Ambroise and Paine, 2006: 78



Table 1.1 Interpretation media<sup>16</sup>

| Static   | Dynamic   |
|--|---|
| <p>Objects</p> <p>Texts and labels</p> <p>Models</p> <p>Drawings</p> <p>Photographs</p> <p>Dioramas</p> <p>Tableaux</p> <p>Informal Sheets</p> <p>Guidebooks</p> <p>Worksheets</p> | <p>Live interpretation</p> <p>Sound guides</p> <p>Guided talks and walks</p> <p>Lectures</p> <p>Film/video/slide/tape</p> <p>Working models and animtronics</p> <p>Computer-based interactives</p> <p>Objects for handling</p> <p>Mechanical interactives</p> <p>Drama</p> <p>Web sites</p> |

### Archaeological Sites

Not all of the media listed above, that are choices for museums can be used at archaeological sites. It depends on whether the site has an interpretive plan or interpretive policies in the management plan. All the intervention on the site and all the archaeological activities are certainly interpretive activities but there may have no or poor presentation of it on the site.

### Archaeological Parks and Open-Air Museums

An open-air museum is basically a type of museum that which exhibits its collections out doors. The interpretation and presentation of resources, usually buildings or big structures, can vary according to the aim of the interpretation and the specific context of the resource.

There is not a specific, internationally accepted one definition of an archaeological park. It's used for different concepts in different parts of the world. In Turkey, for example, there is still not a legal definition in the reated law, although some

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<sup>16</sup> Ambrose and Paine, 2006: 78

archaeological sites have started to be presented as archaeological parks as a part of their interpretive program. Nonetheless, is not wrong to say that archaeological parks are archaeological sites that are open to visitor attraction and offer an interpretation program. According to Mendez <sup>17</sup>, an archaeological park is “a site or archaeological are of great scientific, educational, or historical interest, in a good state of conservation, with a complex structure and a special consideration for the cultural and natural environment, open to the public for cultural, educational and leisure purposes”.

An archaeological park or an open-air museum is more likely to design an interpretive trail as part of an interpretive program.

There are new attempts to make Archaeological Parks spread through the archaeological sites of Turkey. Although it is a very old tradition in Europe and various types of it getting rapidly spread over all the US, Europe and some of Asian countries together with Israel,<sup>18</sup> open - air museums are also newly introduced to the culture of archaeological presentation of Turkey.

#### National parks in the US

As stated in the Management Policies document of National Park Service;

The National Park Service preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The National Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.<sup>19</sup>

So the national parks in the US “are most remarkable collection of places in America for recreation and learning”.<sup>20</sup> National parks in the US are the places where

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<sup>17</sup> Mendez, 1997: 47 (as cited from Querol, 1997: 21)

<sup>18</sup> Eres, 2001

<sup>19</sup> National Park Service, 2006

<sup>20</sup> National Park Service, 2006

integrated presentation of natural and cultural resources takes place. A *comprehensive interpretation plan* is added among other plans that NPS does, such as strategic plan, program management plan, and general management plan.

## 2.2. Literature Review

Theoretical background for interpretive presentation of the archaeology is something new in the archaeological heritage management literature, although, as Jameson puts it, “1980s and 1990s have seen a great proliferations of efforts to meet”<sup>21</sup> the demand for the “translation of an explosion of archaeological information for the public”<sup>22</sup>. According to him<sup>23</sup>, there was a considerable productivity and innovation in the interpretive programs, whereas little written material were produced.

On the other hand, one of the first definitions of “interpretation” goes long way back to 1957 when Tilden – the author of the book “Interpreting our Heritage” in which he “established a firm foundation with six principles of interpretation”<sup>24</sup> – described it as mentioned above. He refers to both natural and cultural heritage by “heritage” in his book, although cultural heritage examples are comparatively more limited.

In addition to several other fundamental books on interpretation after Tilden –mostly by the National Parks Service of USA –,Beck and Cable wrote a book on interpreting cultural and natural resources with fifteen guiding principles to add on the six general guidelines of him. Their book also briefly demonstrates the development of the concept of interpretation since Tilden.

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<sup>21</sup> Jameson, 1997

<sup>22</sup> Jameson, 1997

<sup>23</sup> Jameson, 1997

<sup>24</sup> Beck and Cable, 1998

### International charters and documents

According to Silberman<sup>25</sup>, until the Ename Charter, “while most existing cultural heritage charters and documents” dealt “primarily with issues of physical conservation and site management, none specifically addresses the principles of effective *communication* of the significance of cultural heritage sites”. ICOMOS has been preparing a charter for the Interpretation and Presentation of Cultural Heritage Sites since 2001 and with a final draft in 2007. It defines basic principles of Interpretation and Presentation since –as it is stated in the document- there is a need for a “clear rationale, standardised terminology and accepted professional principles”. This is because, “in recent years, the dramatic expansion of interpretive activities at many cultural heritage sites and the introduction of elaborate interpretive technologies and new economic strategies for the marketing and management of cultural heritage sites have created new complexities and aroused basic questions that are central to the goals of both conservation and the public appreciation of cultural heritage sites throughout the world”.<sup>26</sup>

#### **2.2.1. Approaches to Presentation and Conservation of Natural Archaeological Resources**

Looking at the archaeological park projects especially, when there is a presentation concern of an archaeological site within its environment and an integrated or a holistic approach, there is usually indigenous dynamics on the agenda. Otherwise, this approach has been valid where there is a natural landscape being protected and including cultural assets. The latter is the case in the national parks of the US and the protection of highlands and the countryside in the UK.

On the other hand landscape archaeology also provides a holistic approach to the understanding of the archaeological sites in its environmental context, its landscape.

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<sup>25</sup> Silberman, 2006: 28

<sup>26</sup> ICOMOS, Charter for the Interpretation and Presentation of Cultural Heritage Sites.

Not just in ecological or economical way, but it studies the cognitive interaction of human with its landscape. So the presentation is practiced accordingly; not just interpreting the site but interpreting the landscape as well.

## **2.2.2. Case Studies**

### **2.2.2.1. Swanscombe Heritage Park, UK**

#### **a. Introduction**

Swanscombe Heritage Park is located at Dartford, Kent of UK (Fig. 2.1.) Swanscombe Heritage Park is explained under the heading “heritage and nature working together as a regional source” in the Growing Places<sup>27</sup> book that introduces us the “rich historic environment of the Thames Gateway”, London. It is a National Nature Reserve owned by English Nature<sup>28</sup> and a Site of Special Scientific Interest near the village of Swanscombe in north-west Kent, England, at the Thames, east of London.

Swanscombe is famous for the 400.000 years old human skull fragments found at the so-called Swanscombe Skull Site in the Heritage Park. Three pieces were found in total, separately in 1935, 1936 and 1955. The owner of these pieces is very similar to people today, but a different race that got extinct approximately 100.000 years ago. According to the Natural History Museum of London, where the original remains are kept, the proportions suggest that the skull was that of a female in her twenties. There are also numerous fossilized animal bones, which they have been used to kill and then carve up, and flint tools that date back 400.000 years to the Palaeolithic buried under all over the town.

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<sup>27</sup> English Heritage, 2005

<sup>28</sup> English Heritage, 2005



Figure 2.1. Location and map of Swanscombe Heritage Park ((Base map source: Google Maps)

The Swanscombe Action Group, who developed this “Swanscombe Heritage Park: A Walk into the History” project chose a flint-hand-axe as a symbol of the park (Fig. 2.2). There is a big statue of a hand-axe as a landmark for the park at the inner trailhead (Fig. 2.3.).

### Display and presentation of Archaeology

Since there are no architectural remains, there isn't any archaeology on display on the site. The finds are displayed at various places. For instance, the human (skull parts) and animal remains, some flint tools are kept in the National History Museum, some flint tools, such as a hand-axe, are displayed in the leisure centre close to the entrance to the heritage park, some of the flakes of the flint tools are in the Museum of London. None the less, the location where the skull pieces are found is marked with a big interpretive panel, giving basic information about the discovery of the three pieces (Fig. 2.4.).



Figure 2.2. Hand axe as a symbol



Figure 2.3. The hand-axe statue and different treaded tracks

Some of the stone tool and animal bone finds with the replica of one of the parts of the skull are on display in the leisure centre at the outer entrance in a compact vertical display (Fig. 2.5.).





Figure 2.4. Interpretive panel for the location where the skull fragments are found

The display presents a very brief interpretation of the site by using the finds. However, one significant drawback of this exhibition is that the visitor is not told that there is an exhibition there until they go into the nature reserve, see the big panel, and read the sentence at the lower part indicating that there is a replica of the skull is displayed there. There is no indication of this information neither in the brochure, nor on the Swanscombe Heritage Park website.<sup>29</sup> Another issue that was left and missed out in the exhibition is its location together with the lighting. Since it is covered with glass it should have put at a place where the daylight is not reflected from the glass panels. Otherwise, if not in addition, it should have been illuminated from inside of the glass case.

<sup>29</sup> <http://www.swanscombeheritagepark.co.uk/>





Figure 2.5. Exhibit in the Leisure Centre close to the park

It is noticeable that there are a lot of reconstruction drawings of the landscape, people, extinct animals of paleolithic are used, in the trail signage, in the exhibit, and on the website of the park.

### **b. The Trail**

There is an interpretive trail starting from the inner trail head and going into the woods. The trail is basically one of the tracks in the public park (Fig. 2.1.). The tread material of the trail is different than the other tracks in order to differentiate the guided trail from other tracks (Fig. 2.3.). There are information panels aside and metal plaques carved into the pavement. It is possible to divide the trail into two routes. Former is a paved route from the entrance of the park to the starting of the woods, a designated national nature reserve. The landscape the trail runs through is



Figure 2.6. The end of the first route and beginning of the second

an open space with scattered bushes. The other one, which is the following of the former, is a dirt track, left natural, running into the woods (Fig. 2.6.).

The signs are metal panels placed into big blocks of gneiss (Fig. 2.8.). The signs are aesthetically and cleverly designed, well suited for the spirit of the park. They might be making a reference to the former use of the land – a quarry but to extract chalk and gravel.

### **c. Signage – Discourse**

There are only five signs along with the former path, other than the panels carved on the pavement illustrating the animals lived in the area, “the past residents of Swanscombe” (Figs. 2.7. and 2.8.). Along with the following route that runs into the woods, there are three signs on the very spots of the fossilized skull fragments were found (Fig. 2.9.).



Figure 2.7. Interpretive sign designs



Figure 2.8. Signs mounted on the ground

The five signs involve five different topics about the park. First is about the wildlife today, second is depicting what was the activity in the area before the park, third is about the geological stratigraphy and the archaeological and environmental remains the layers contain, Forth is illustrating the wildlife in the past, and fifth, the last one acts as an introducing sign of the Nature Reserve.



Figure 2.9. Three signs on the spots

#### **d. Discussion**

The trail is short and easy to follow with the help of the tread and the signage. Signs being mainly text heavy and monochrome may discourage people of reading and looking at it. On the other hand the language is simple and there isn't a bombard of information in addition to the avoidance of the technical terms. This makes them easily understandable without reducing the educational value.

#### **2.2.2.2. Lesnes Abbey Woods, UK**

##### **a. Introduction**

Lesnes Abbey is an archaeological site where the remains of an abbey from 12<sup>th</sup> century are located, right next to and north of a wide area of wood and heath land called Abbey Woods in the southeast part of London (Fig. 2.10.). The layout of the building is visible including foundations and some parts of standing walls (Fig.2.11).



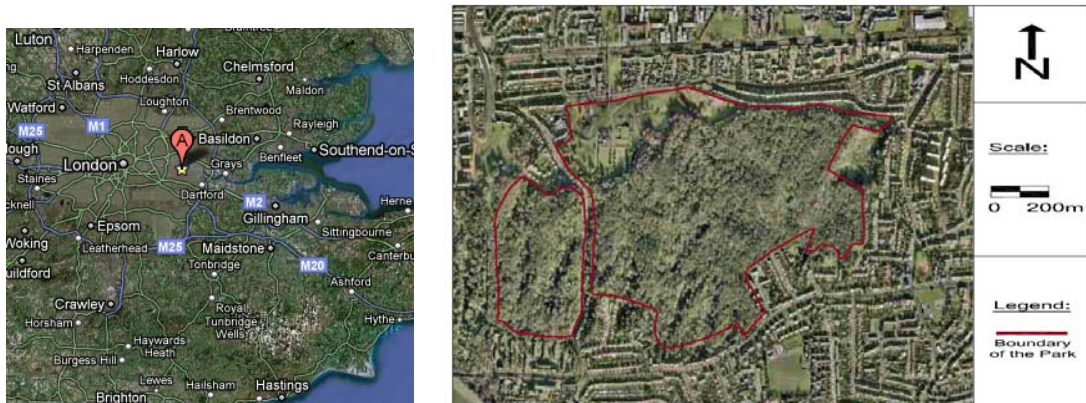


Figure 2.10. Location and map of the Lesney Abbey Woods (Base map source: Google Maps)



Figure 2.11. Part of the Layout of Lesnes Abbey

It is a good example of integrated presentation of nature and archaeology together although it has some drawbacks that will be discussed below.

### History of the archaeological site

Lesnes Abbey, which was then “the Abbey of St. Mary and St. Thomas the Martyr” was built in 1178 right next to the shores of River Thames in order to make it possible to get stones for the building and other supplies by boat. Until it was dissolved as a result of the decline of monasticism and the growth of anti-clericalism, it had only one big repair. During the time when it was owned by succession of landowners followed by the Christian church, the monastic buildings were demolished leaving only the barn by 1845. The site was called Abbey Barn when there was an excavation in 1909. The remains were covered after the excavations were finished due to lack of money, and the site continued to be a farm. Finally, a second and last excavation was done around 1950s and the abbey was uncovered except some parts like Abbot’s lodging and Infarmary (hospital). It is now acquired by the Bexley Council, and is a public park since 1930.<sup>30</sup>

### Display and Presentation of Archaeology

The standing and remains of the walls are consolidated and conserved. Floor level of the building is covered and designed as lawn surface, but direct contact of the building materials and the grass is avoided (Fig. 2.12). The latter action should have been taken both for aesthetical and conservational concerns. Other than these, there are not any other measures for the protection of the archaeology such as shelters, fences around the remains, or warning signage. There are no limitations and restrictions that control visitor mobility. In fact, visitors are encouraged to go inside the remains and walk around and on the walls, by the landscape architecture, since the same type of lawn continues inside without any change indicating that it is accessible inside (Fig. 2.13). The architectural reconstruction drawing of the abbey building is used often on the interpretive signs (Fig. 2.14.).

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<sup>30</sup> Local Studies Notes of London Borough of Bexley, and interpretive signs on the site



Figure 2.12. Walls of Lesnes Abbey



Figure 2.13. Visitor mobility

### **b. The Trail**

There is not one whole trail connecting and experiencing the archaeological site and the woods together. On the other hand, the trailhead for the trails in the Abbey Woods is right next to the remains of the site.





Figure 2.14. Interpretive signs for the Abbey

There is not a trail designed for the visitors that guide them in and around the remains. There are three interpretive and information sign panels around the remains of the building complex informing in different subjects (Fig. 2.14)

There are various routes in the trail of the Abbey Wood. They are named as different letters on a map of the woods and several sentences of information on a brochure about what you can find on these routes. However, if one do not have seen this brochure or do not have it with while walking, it is hard to be guided and easy to miss the important features defined on the introductory panels and in the brochure.



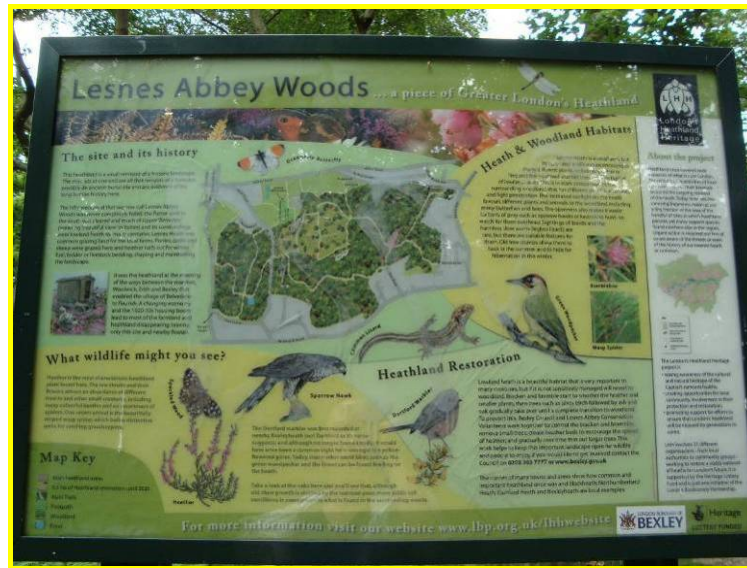


Figure 2.15. Interpretive sign for the Natural resources of the woods

### c. Signage – Discourse

This leads us to the signage. There are not any signs for the interpretation and explanation of the natural features and environment while moving through the trail. There are three introductory panels close to the information centre for both the remains and the woods, in addition to one interpretation panel inside the woods. (Figs. 2.15 and 2.16). In addition to the interpretive signs that explain the architectural terminology and the features, the finds, chronology and the history, there are signs to tell the visitor which space or room of the building complex they are entering (marked with circle in Fig. 2.14)

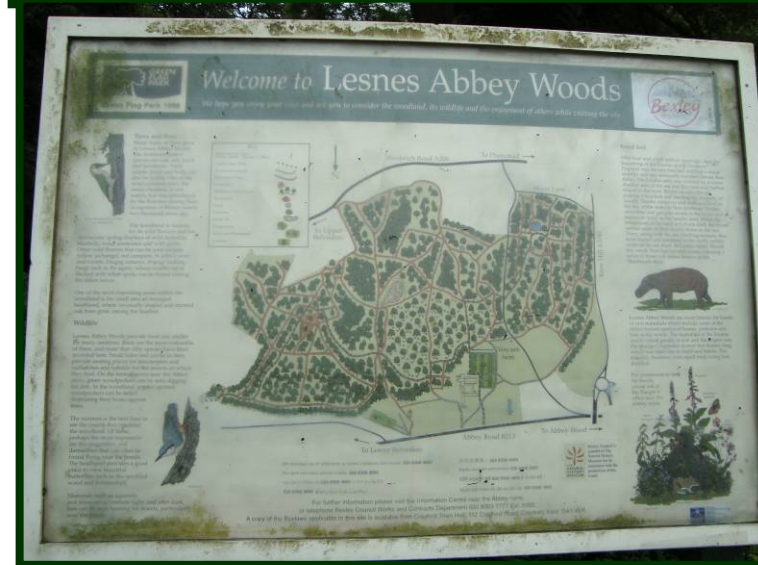
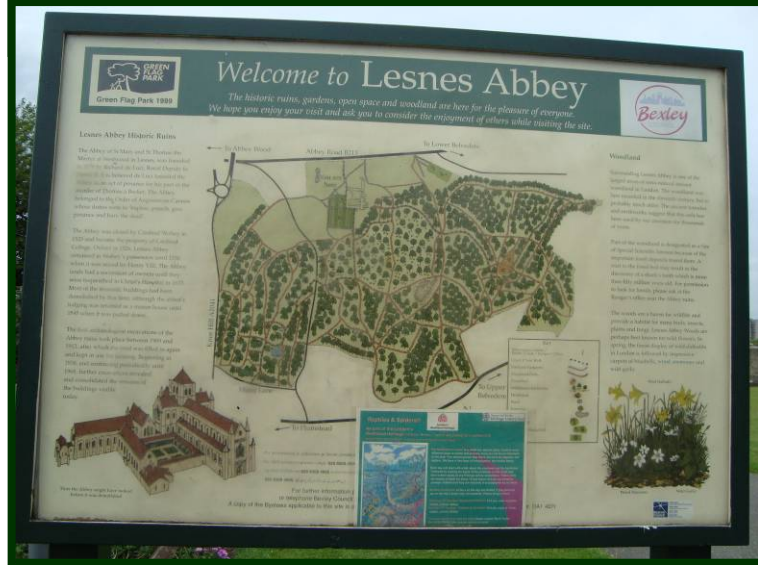
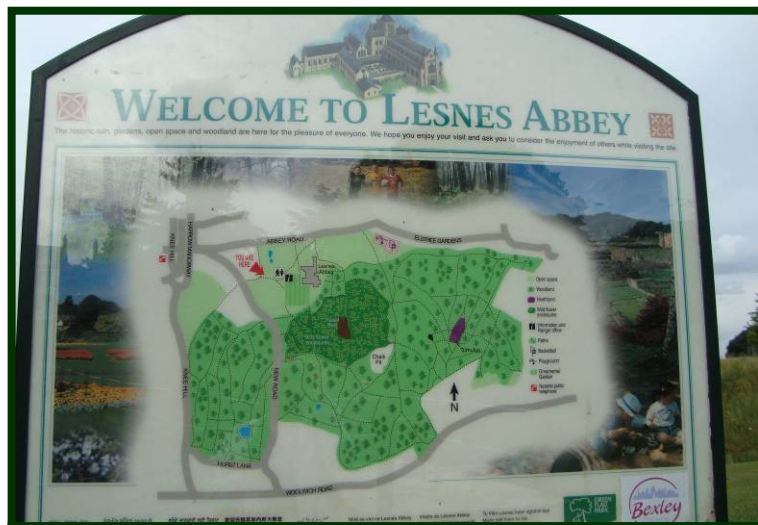


Figure 2.16. Introductory signs

## **CHAPTER III**

### **STUDY AREA**

This chapter will provide background information about the current situation of the study area. It will include an overview of archaeological and natural resources, and an assessment discussing enclosed problems vs. potential areas and features.

#### **3.1. Definition of the Study Area**

##### **3.1.1. Location**

The study area is located in the Middle East Technical University (METU) Area at the southwest of Ankara, Turkey (Fig. 3.1). METU Area consists of the university campus, Yalincak, Koçumbeli, Eymir and Ahlatlıbel regions; covering approximately 4245 hectares. The area that makes the green and open space and leaves the built campus in the northern edge, is referred as METU Forest here despite the fact that the forest cadastre boundary coincides with the METU Area boundary. The study area is restricted to METU Forest at Yalincak and Koçumbeli regions excluding the other ones because of the reasons illustrated in the definition by boundaries section. Before, the METU area will be examined in Ankara scale.

METU is located between the main arterial roads of the city; Konya and Eskişehir Road. The main campus-entrance on Eskişehir Road, which is only 7 km to the city centre, is on Eskişehir Road.<sup>31</sup>

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<sup>31</sup> See Appendix A for the location and situation of METU Area in the urban context through time.



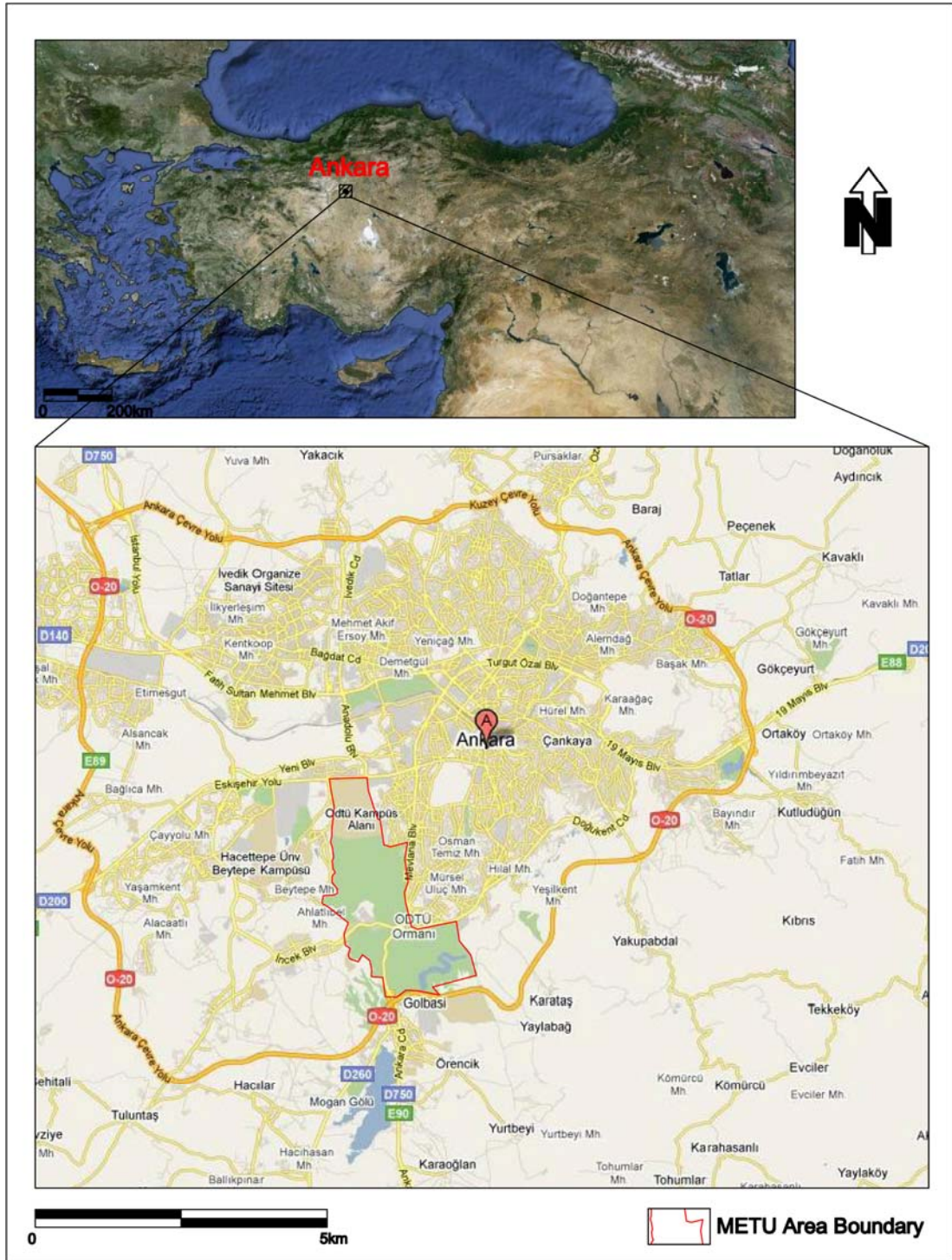


Figure 3.1. Location of the case study area (Base map source: Google Maps)

### 3.1.2. METU Area in the Urban Context

The concern of this section is the current situation of the area in the urban context and city scale. Therefore, the planning history of Ankara, and the effects of plan decisions on METU Area through time will not be discussed in detail here. On the other hand, it is useful to mention some important plans and planning decisions that effected METU Area's position, integrity, and relationship spatially in the urban context. After the 1990 Master Plan, which came into force in 1982, urban development started to be directed towards west – along the İstanbul and Eskişehir roads “corridor”.<sup>32</sup> Consequently, METU Area started to get closer to the built urban space, and to be included in the urban macroform (Fig. A.1. (Appendix A)). Before the northern part of METU Area started to be surrounded by the residential areas, it was considered as a part of a proposed green belt system (Figure A.2. (Appendix A)). Then, this belt could not be realised because of the proposals and development of residential areas to west and southwest direction<sup>33</sup>. One of the most recent and important of plans that effect the close vicinity of METU Area is *1990 Ankara Master Plan Partial Revision* approved on 18.07.2001. It is prepared with the purpose to direct the rapid and uncontrolled residential development in the southwestern corridor of Ankara –between Konya and Eskişehir Roads<sup>34</sup>.

Throughout these stages of the urban development and spread there were not any major changes in the boundaries of the METU Area Land. On the other hand, there were discussions about possible intrusive plan decisions concerning the METU area land as a property, recently -such as acquisition of parts of the land by the municipality for residential development, a linking road construction through the campus, and demolishing of some buildings of METU Campus. In fact, the road

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<sup>32</sup>,Development and City Planning Department of Greater Municipality of Ankara, 2006

<sup>33</sup> It was proposed in the *1990 Ankara Master Plan* first and followed by *1990 Ankara Master Plan Partial Revision*. See Appendix A, Figure A.3. for the development of residential areas through time.

<sup>34</sup> Development and City Planning Department of Greater Municipality of Ankara, 2006. See Appendix A, Figure A.4. for the plan

construction decision was officially reflected and proposed in the 2023 Ankara Master Development Plan (1/25000), prepared in 2007.

As the city and population grow bigger, the open and green spaces become more important as well as more vulnerable. In this sense, METU Area provides a substantial green and open space with its size when the history of the failure to form a green belt or such is considered at Ankara.<sup>35</sup> The green belt system, proposed in the 1990 Ankara Master Plan, was never completed. It was because the forestation could never be completed in the projected areas, and also because of the following planning decisions that made the project impossible to sustain. Today, the largest green spaces in the city of Ankara include the “semi-private open-green spaces”, which are the campuses of universities; military, state and other institutions. Others include big public parks and other recreational areas.<sup>36</sup>

### **3.1.3. Middle East technical University Campus and Forest**

METU was founded and started education on November the 15<sup>th</sup> 1956. It was called “Middle East High Technology Institute” (Orta Doğu Yüksek Teknoloji Enstitüsü), and operated temporarily in the dispersed barracks and buildings in its first years. It was 1963 when the university moved to its current location. The METU campus is the first university campus of Turkey.<sup>37</sup>

METU Forest project was initiated in 1957 under the name of METU Atatürk Forest and a pilot area of 18 hectares was planted. After the success of the pilot area, a big forestation campaign was started, and 33 millions of trees were planted in the project since 1961. Some of the most common tree species planted were black pine (*Pinus*

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<sup>35</sup> Development and City Planning Department of Greater Municipality of Ankara, 2006

<sup>36</sup> See Appendix A, Figure A.5. for the distribution of green spaces at Ankara

<sup>37</sup> History of METU on <<http://www.metu.edu.tr/about/history.php>> (latest access on December, 2010)

*nigra*), yellow pine (*Pinus sylvestris*), cedar, Turkish oak (*Quercus cerris*), poplar (*Populus alba* and *Populus nigra*), and almond (*Prunus dulcis*) (Fig. 3.2.).

METU Forest boundary and METU Area boundary coincides except for minor variances. PTT (Post Office) owned land for recreation, and Ankara University Observatory Campus was not included in the latest METU Forest Management Plan (2007-2026) since it has been excluded from the boundaries recently.<sup>38</sup>

#### **3.1.4. METU Area in the Legal Context**

The owner of the METU land is the legal entity of the university. As discussed above, there are conflicts among the stakeholders about the planning decisions that are directly affecting METU.<sup>39</sup> In this sense, it is very important that archaeological resources and natural resources are protected legally by area protection statuses. There are 3 archaeological sites listed as I. Degree, and several protection areas listed as I., II., and III. Degree Natural Sites (Fig. 3.2.). Despite the fact that, to what extent these legal statutes are operational and effective is arguable, they protect these areas from the adverse effects of human activity, in theory.

In 1995, Ministry of Culture decided these sites and areas to be listed, after some faculty from Department of City and Regional Planning at METU wrote a detailed report about their condition and significance. I. degree archaeological sites in the METU Area are Ahlatlıbel, Koçumbeli and Yalıncağ Archaeological Sites. (Fig 3.3.)

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<sup>38</sup> 31. Orman Amenajman Başmühendisliği, 2007

<sup>39</sup> Although the larger scale plans for the campus area is under the responsibility of Çankaya Municipality, there have been some discussions and conflicts after the Greater Municipality announced that they took the charges to make the 1/1000 and 1/5000 plans of METU. In fact, these discussions followed the decision of demolishing the 45 buildings of METU by the Greater Municipality, claiming that there are no legal plans in force, currently, to legitimize these structures. The justification for this claim is the fact that the current plan in force (the METU Master Plan prepared in 1992) is cancelled and not in force any more.



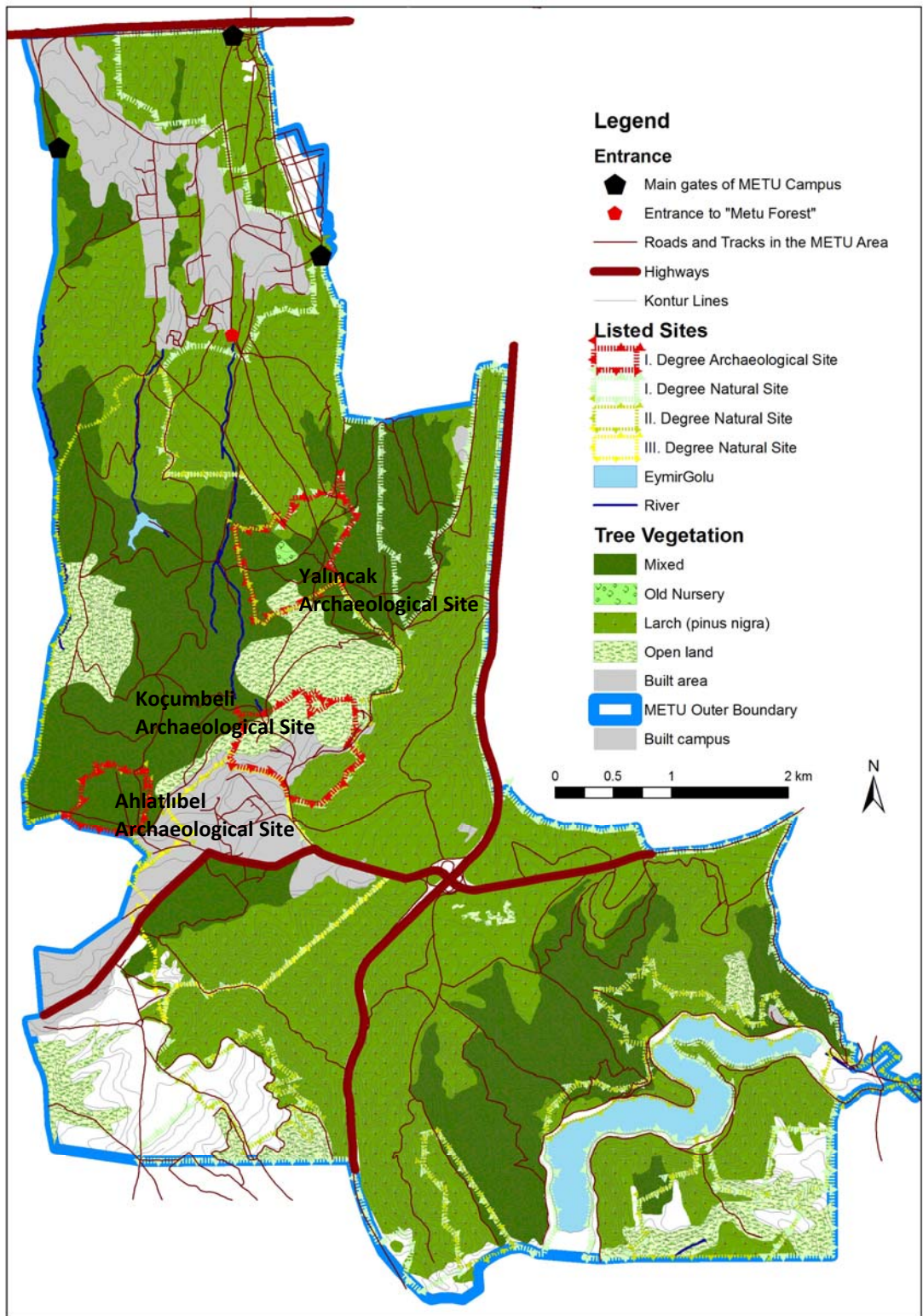


Figure 3.2. The current situation of the METU Area



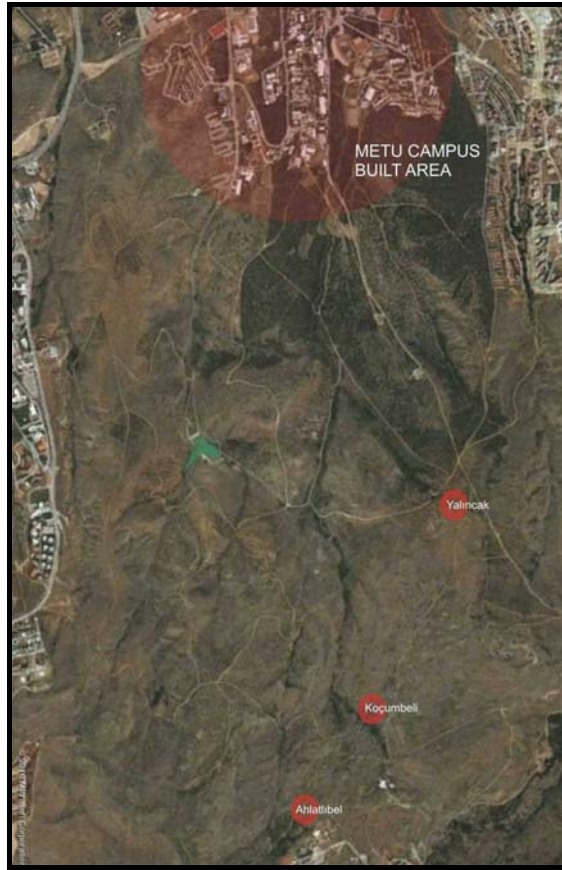


Figure 3.3. Study area showing listed archaeological sites (Prepared from a satellite image view from Google Earth)

### **3.1.5. Definition of the Study Area by Boundaries**

Boundary of the study area is determined by considering three main features; the original boundaries of the campus, interruption of the ecological habitats -both natural and artificial-, and reasonable walking distance considering the suggested entrances to the study area. According to those constraints, the area in the easy access from the proposed trail system is defined as the study area. It comprises of the METU Forest that is south of the built campus, and north of the Incek Road that runs through the METU Area boundary in east-west direction (Fig. 3.3.).

## 3.2. Archaeological Resources

There are at least five archaeological sites in the METU Area.<sup>40</sup> As also mentioned above, three of them are listed as I. degree archaeological sites. However, according to the results from Jan Bertram's archaeological survey<sup>41</sup> in the area, despite its designation, Ahlatlıbel archaeological site could not be located.<sup>42</sup>

These sites were excavated in the previous years. All of the artefacts recovered from Ahlatlıbel and some of those from Koçumbeli and Yalıncağ are in the Anatolian Civilizations Museum. The rest of the artefacts from Koçumbeli and Yalıncağ sites are kept in the METU Museum.

### 3.2.1. Ahlatlıbel Archaeological Site

Ahlatlıbel was excavated by Prof. Dr. Hamit Zübeyr Koşay in 1933. The excavation was initiated by the encouragement of Atatürk, probably as a part of an establishment-of-archaeology-scheme in the newly built republic.

It is called a citadel instead of a settlement, by Koşay in his article about the Ahlatlıbel excavation, due to the remains of doubled fortification walls.<sup>43</sup>(Fig. 3.4.) It is dated to ca. 4<sup>th</sup> and 3<sup>rd</sup> millennium BCE. by Koşay according to the pottery evidence. Bertram et. al.<sup>44</sup> date the site to the middle of the 3<sup>rd</sup> millennium BCE. The site was not a multi-period occupation but was occupied for a specific time period.

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<sup>40</sup> Bertram and İlgezdi – Bertram, 2008

<sup>41</sup> Bertram and İlgezdi – Bertram, 2008

<sup>42</sup> It is suggested recently that Ahlatlıbel archaeological Site is now located inside the recreation area of PTT (Bertram, personal communication, 2010).

<sup>43</sup> Koşay, 1938

<sup>44</sup> Bertram and İlgezdi – Bertram, 2009; 388



Figure 3.4. Plan from the Excavation report by Koşay<sup>45</sup>

The findings consist of pithoi, some of which 2m deep, more than a hundred grinding stones, various types and sizes of pottery, spindle whorls, flint tools, stone axes, stamp seals, animal bones, and worked bones and copper tools.

### 3.2.2. Yalıncağ Archaeological Site

This site was excavated by Burhan Tezcan during 1962-64 seasons. Yalıncağ archaeological site is named after the Yalıncağ Village that was situated on top of the remains of the ancient settlements, as the last occupation layer of this multi-layered site. Unlike Koçumbeli and Ahlatlıbel, this site was inhabited continuously since ca. 6. century BC<sup>46</sup>. According to Tezcan, there is evidence for Phrygian, Hellenistic, Galatian, Roman and Byzantine occupation levels. (Fig. 3.5).

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<sup>45</sup> Koşay, 1938

<sup>46</sup> Tezcan, 1966

The rectangular structures, which comprise of two or three rooms, were mostly damaged and lost their materials during the ongoing occupation since 6<sup>th</sup> c. BCE.<sup>47</sup> The stones from the buildings continued to be reused by the new residents of the following periods. Finally the residents of Yalincak Village used the remains, visible on the surface, for the new houses as the village developed towards west.<sup>48</sup> For instance, there was one piece, used in the construction of the fountain of the village (Fig. 4.27.), that introduced Yalincak Archaeological Site to the world in 1898. It was a line relief carved into andesite, which is a local rock also called Ankara stone (Fig. 3.6). Moreover, the site was used as a stone quarry to extract rocks for the construction of the Ankara Cement Factory, and marble blocks and stones were removed from the site for the construction, too. The reusing of the ancient remains did not stop even after the expropriation of the village for the construction of the university. The standing colonnade, that can be seen in the Figure 3.4., was removed recently, probably for the construction of the METU Dam only a few km. away.<sup>49</sup>

In addition to lion relief, some of the other most significant finds include two colonnades, a terracotta statue -thought to be of Cybele-, horse shaped figurines, a Zeus relief carved into a used marble, two ionic column capitals having traces of red paint, ornamented Hellenistic pottery, and Hellenistic coins that belong to the period of Aurelian, Maximian I, and Constantine I (270 -337 BCE).<sup>50</sup>

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<sup>47</sup> Tezcan,1964

<sup>48</sup> Tezcan,1964

<sup>49</sup> Geoffrey Summers (who noticed the disappearance), personal communication, 2009

<sup>50</sup> Tezcan,1964



Figure 3.5. The excavation of Yalincak Archaeological Site at Yalincak village<sup>51</sup>



Figure 3.6. Lion Relief from Yalincak Archaeological Site<sup>52</sup>

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<sup>51</sup> Kurdaş, 2004

<sup>52</sup> Güterbock, 1946; 53

### 3.2.3. Koçumbeli Archaeological Site

Koçumbeli is another site, which was inhabited for a short period of time having only two occupation layers (Fig.3.7.). It is suggested by Tezcan<sup>53</sup> that Koçumbeli is contemporary with Ahlatlıbel which is also dated to the second half of the 3<sup>rd</sup> millennium according to the resemblance of the material culture from the sites Troia, Polatlı Beştepeler mound, Karaoğlan mound in the vicinity of Ankara, and Kültepe Karum.

The archaeological remains consist of variety of pots and cups, vases, idols, stamp seals, toys, animal figurines, bone artefacts and spindle whorls (Fig. 3.8.). There are also finds from the only grave less than 100 meters away from the site: a copper-bronze spear head and golden ear plugs plugged into the body's ears.<sup>54</sup>

Koçumbeli, Ahlatlıbel, Karaoğlan and Etiyokuşu<sup>55</sup> are important and key sites to understand the Central Anatolian Bronze age. They are contemporary, if not, date to very close periods.<sup>56</sup> Tezcan<sup>57</sup> claims that the similarities of the artefacts from these sites to those from other 3<sup>rd</sup> millennium BC. sites in the Kızılırmak basin and the ones in the west are noteworthy. Accordingly, he suggests that these four sites play a role of (geographical) transition in the 3<sup>rd</sup> millennium BC.<sup>58</sup>

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<sup>53</sup> Tezcan, 1966: 11

<sup>54</sup> Bertram, 2008

<sup>55</sup> According to personal conversations with Jan-K Bertram, the archaeological site of Etiyokuşu cannot be located anymore.

<sup>56</sup> Bertram, 2008

<sup>57</sup> Tezcan, 1964: 10

<sup>58</sup> Tezcan, 1964: 10





Figure 3.7. Satellite image view of Koçumbeli Site and the grave together with the layout plan of the remains. (Source for the satellite image: Google Earth. Source for the site plan drawing: Unpublished research of Jan-K Bertram.)



Figure 3.8. Ceramic finds from Koçumbeli (2,4,5,6,8,9) and Ahlatlıbel<sup>59</sup>

<sup>59</sup> Bertram, 2008; 84



### **3.2.4. Archaeological Landscape**

Although there is no evidence recorded from the archaeological sites, there is a high possibility to find traces and evidence of ancient flora around the archaeological sites of Koçumbeli and Yalıncağ. It is important that the whole area was not occupied – Yalıncağ since 1961- and recently designated for a protection status. According to the report on METU Nature Reserve proposal by the METU Nature Club,<sup>60</sup> the wild cereals found in the area could be refugees from agricultural lands, settled, spread and got wild over a period of time. It is suggested that this period of time could have lasted since the time of the ancient settlers at Koçumbeli, Ahlatlıbel and Yalıncağ. Furthermore, according to Tuna<sup>61</sup>, landscape of Koçumbeli is as important as the site itself because of the existence of the grain that is Anatolian originated.

#### **3.2.4.1. Possible Ancient Stone Quarries**

The study area contains numerous stone quarries, which have been recently used. Quite a few limestone outcrops were exploited as quarries for the construction of the METU dam and for lime production in the study area. Explosive marks together with boreholes on the outcrops can be readily identified as evidences of recent usage (Fig. 3.9.). Relatively fresh surfaces of remained rock blocks and the extent of the quarries substantiate the idea of recent utilization of quarries rather than ancient exploitation of them (Fig. 3.10.). But still, during the preliminary field reconnaissance, chisel marks(?) left on the limestone blocks were also determined which could be used as evidence for the ancient quarrying (Fig. 3.11). On the other hand, there is not enough evidence to say that they were places where ancient settlers extracted stones. Further extensive survey and study is needed.

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<sup>60</sup> ODTÜ Doğa Topluluğu (METU Nature Club), 1996: 97. METU Nature Club prepared a comprehensive report on METU Forest with a proposal of a Nature Reserve in the METU Area in 1996.

<sup>61</sup> Tuna, 2008. (An unpublished report submitted to the registrar consulting on the importance of the archaeological sites at METU)



Figure 3.9. Marks of explosives



Figure 3.10. Recent quarrying activity in a larger extent



Figure 3.11. Possible chisel marks

It is for sure that ancient quarry/quarries was/were present and exploited during occupation period of the settlements. Excavated foundation rocks are also limestone blocks possibly extracted from the nearby outcrops. Although we are sure about the presence of ancient quarries, it is not straightforward to identify them due to the recent exploitation. Tool marks, which are the indications of ancient utilization might be vanished during the recent utilization. So, further detailed, systematical investigation is required for the exact identification of possible ancient quarries.

Koşay mentions about nearly fifteen-quarry-debitage barrows that were first thought to be tumuli. It was 1933 when these bumps were noticed on the way to Haymana, “14 km southwest of Ankara centre”<sup>62</sup>. One of the most remarkable was picked and

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<sup>62</sup> Koşay, 1938

excavated. It was discovered that the barrow was made of quarrying debitage. When a deep sounding was dug, with the uncertainty which period they belonged to, it revealed that it was Roman as the pottery sherds and metal tools were recovered. With this evidence in hand Ataturk then ordered for an investigation to look for a closer settlement at the vicinity of this ancient quarrying activity. Not so long after the start, pot sherd concentration was discovered 200 m away from the quarries. They were the precursors of an ancient activity, which would soon be called Ahlatlibel archaeological site.

There is also great potential for industrial archaeology activities in the area. There are three lime kilns which were all in operation even after the University was established (Figs. 4.6, 4.7. and 4.10.)<sup>63</sup>. There are no surveys or any other research done on these lime kilns. However, they need urgent recording and stabilization.

### **3.3. Natural Resources**

#### **3.3.1. Fauna**

As a result of METU forest being a natural sanctuary for the animals escape from the urban chaos, the area is rich in fauna. Another cause that leads to this that it contains a considerable variety of ecological habitats and the ecological cycle is unbroken.

There is no substantial work done and published about the fauna of the METU Forest except for the comprehensive study of the ornithology of METU.<sup>64</sup> According to this study, there are 224 bird species that is recorded inside METU campus area. 42 of them can be seen every season, 20 of them only winter, and 78 of them only when

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<sup>63</sup> See Figure 4.1 for the locations with the help of the text in Section 4.5.1. Signs and stops

<sup>64</sup> Oruç, S. (Ed.). (2009). *ODTÜ'nün Kuşları 1995-2008* (Birds of METU). Ankara: ODTÜ Kuş Gözlem Topluluğu (METU Bird Watching Club)

they are migrating. Among those, the total number of the birds who breeds in the area is 78<sup>65</sup>. In addition to birds, there are 24 mammal species including gray wolf, brown hare, red fox, badger, various species of bats and mice; 10 reptile species including greek tortoise, caspian turtle, various species of lizards and snakes; and around 120 butterfly species.<sup>66</sup>

### 3.3.2. Flora

The area was covered with wheat fields before METU acquired the land. In 1961, a big project of forestation started. In 8 years time there was a big healthy forest with 10 – 12 different tree species.<sup>67</sup> 33 millions of trees were planted including black pine (*Pinus nigra*), yellow pine (*Pinus sylvestris*), cedar, Turkish oak (*Quercus cerris*), poplar (*Populus alba* and *Populus nigra*), almond (*Prunus dulcis*), since 1961 in the METU area.

Other important elements of the flora of METU area are shrubs, which are key elements of steppe ecology, such as wild pear, (*Pyrus eleagrifolia*), hawthorn (*Crateagus spp.*); reeds; bushes; and herbaceous plants or herbs. They consist of 500 wilflowers in the area.<sup>68</sup>

### 3.3.3. Ecological Assessment

As also noted in the report prepared for METU campus<sup>69</sup>, it's important to state that the campus area is unique in terms of urban-rural classification in the ecological evaluation methods. Because, firstly, most of the methods for evaluating natural

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<sup>65</sup> Oruç, 2009

<sup>66</sup> See Appendix B for the fauna species list

<sup>67</sup> Kurdaş, 2004

<sup>68</sup> See appendix A for the flora species list

<sup>69</sup> METU Nature Club, 1996



resources are subject to human settlements in rural context, whereas METU area is inside the rapidly spreading urban development, only 7 km away from the city centre. Secondly, the methods for evaluating the urban green and used for the urban ecology are not enough to assess the rich natural resources of METU campus area.

On the other hand, if we are to make an ecological evaluation roughly for the METU campus area, it is possible to say that it has a high value for an urban context because of its forested area and relatedly the fauna thanks to it, very little amount of agricultural land, being a reserve and a sanctuary for the wildlife.

#### **3.3.4. Geology**

Primarily five types of outcrops which pertain to Emir Formation (Paleozoic-Mesozoic), Kısıküstü Formation (Triassic), and Yalıncağ Formation (Neogene-Quaternary) cover the METU area. The most widespread one is Metagraywacke - a variety of sandstone which exhibits slight metamorphism. Metagraywacke, which belongs to Emir Formation, spreads over the 36.66 % of the METU area. Young red sedimentary deposits follow Metagraywacke outcrops with an outcropping percentage of 28.37. These red sedimentary deposits are Quaternary in age and appear in the Yalıncağ Formation. In the middle part of the campus area, blocky limestone, which cover 13.73 % of the whole area, are exposed. The rest is exposed by metaclastics with an outcropping percentage of 12.83 and Quaternary alluvial deposits with a percentage of 6.84 of the whole area. The blocky limestone series and metaclastics pertain to Kısıküstü Formation (Fig. 3.12.).<sup>70</sup>

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<sup>70</sup> Yeşilnacar, 1998

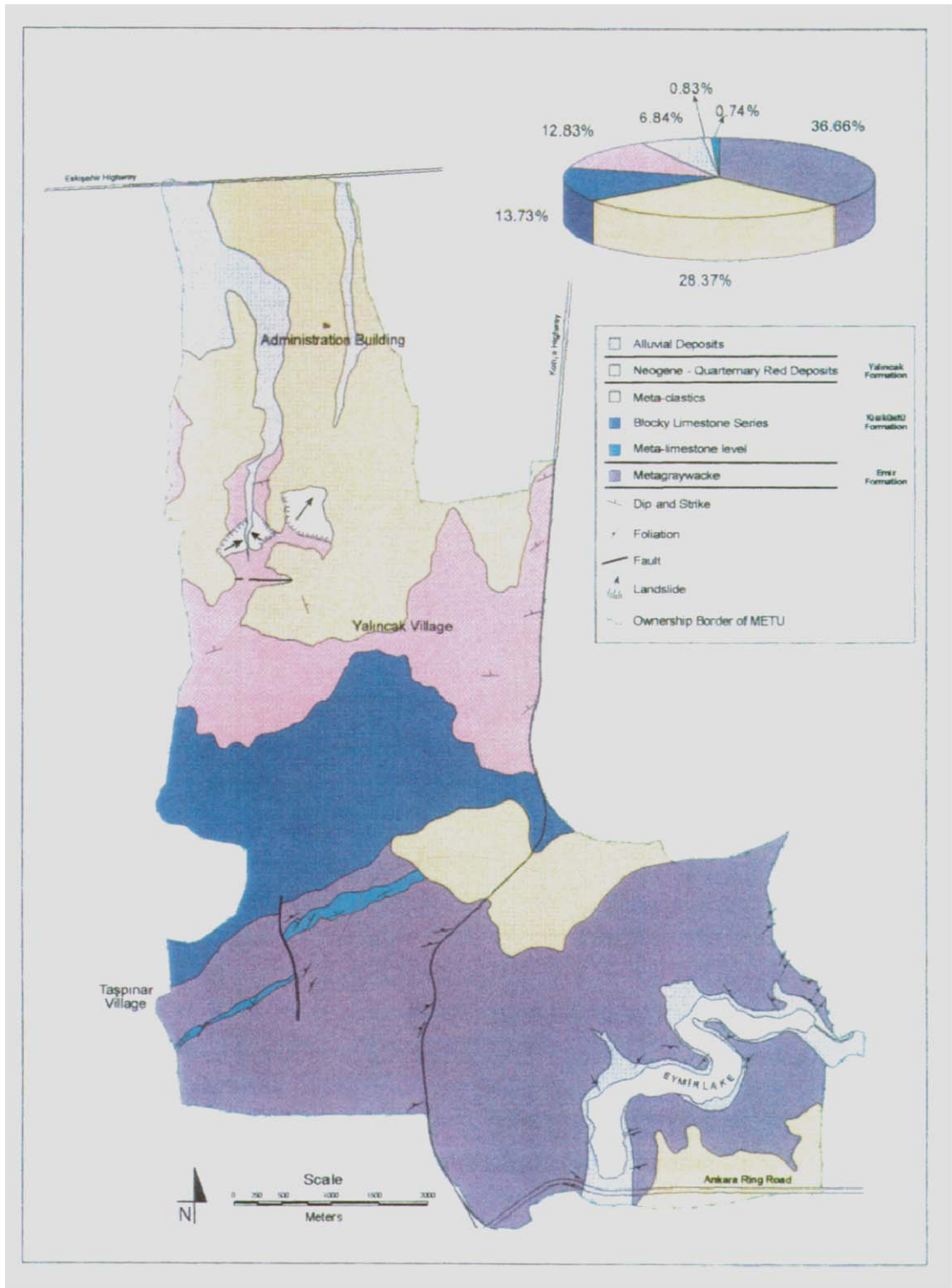


Figure 3.12. Geological Map of METU<sup>71</sup>

<sup>71</sup> Yeşilnacar, 1998: 41

### **3.4. Summary and an Assessment of the Current Situation**

It is a great opportunity for such an area rich in natural and archaeological resources being within a university campus boundary. This is because of several reasons. First, it is protected against urban development – especially the unplanned, unauthorised, squatter type of constructions. Second, since it is university campus area wherein there are biological sciences and archaeology departments, it can well be used as a Nature and Archaeological Reserve, and can be used for educational purposes for variety of target audience. These will provide a sustainable use of the resources.

As stated before, the archaeological and natural resources in the campus are legally protected by designation of protection status by the Ministry of Culture and Tourism. However, legal restrictions are not always resulting successfully in practice regarding the general conditions in Turkey with the high pressure of urban development and urban rent being the primary reason. We can see the secondary reason, which is the lack of notice and care, in the examples of Ahlatlıbel and Yalıncağ archaeological sites cases. Former is lost because of a recreation area built over it and the latter lost its standing structures in the last decades (Figs. 3.5 and 3.13.). Besides the inadequacy of the protection, there should be actions taken in terms of conserving and stabilizing the remaining from the sites Yalıncağ and Koçumbeli. Further damage is possible if the sites are continued to be left alone and there are no actions taken. For instance, only a few months ago there was a trench of an illegal digging - one of the most significant player in the destruction of the sites- right next to Yalıncağ Archaeological Site (Fig. 3.14.).

Another issue that should be discussed about these resources in the campus area is that it is not well known by the campus population it self. Although there is not a quantitative work done on the visitor statistics of the study area, individual field observations revealed that only small proportion of the campus population benefit from the clean air and the nature of the METU forest. Even a very smaller proportion is aware of archaeological sites in the campus.





Figure 3.13. Current view from a part of Yalincak archaeological site



Figure 3.14. Illegal digging close to Yalincak Archaeological Site

Taking into consideration all of these resources investigated in detail in the previous sections and issues touched upon in general in the paragraphs above, this thesis suggests a practical application in order to ensure a more successful preservation of the resources and to provide an environment for the enjoyment and education of people in nature and archaeology: An Interpretive Education Trail System.

## **CHAPTER IV**

### **A PROPOSAL FOR THE INTEGRATED PRESENTATION AND PRESERVATION OF NATURAL AND ARCHAEOLOGICAL RESOURCES – AN INTERPRETIVE EDUCATIONAL TRAIL SYSTEM**

#### **4.1. Introduction**

The question “why” (this kind of an application is proposed) is tried to be discussed at the beginning of the theses. If we are to answer the question “why not ...”, the alternative possibilities should be discussed which are included in the background chapter. Archaeological Park or an “Archaeopark” concept, which has been reviewed as possible alternative, was the closest concept in terms of the purpose and scope. Two reasons directed the proposal away from this concept. First, the archaeological remains are not in a status of monumental to be a focus of a park, and the archaeological resources are not studied detailed enough to provide evidence for reconstructions and site-specific experimental archaeology activities. Second, a focus on archaeology would shadow the emphasis on the natural features of the area and thus the integrity concept could not have been promoted.

This proposed trail system for the METU Campus Area reveals its purpose and function in its name. It is an interpretive and educational trail. It aims to deliver an interpretation of archaeological remains, natural features and environment, and have educational value in the content. Moreover as having an integrated and holistic approach, it emphasizes the impact of human on the environment and vice versa.

It is a system because it has a purpose and it aims to have outputs. It has elements that both work together and integrate; and elements that are interdependent. In other words, it is an integrated whole, but different trail stops that are both independent from and related to each other.

The trail system includes two routes, long and short; interpretive, information and direction signage; various proposals for implementation at the proposed stops and stations including the point of interest; guidelines to make the best of potential areas and to resolve problem areas; suggestions for activities to enhance the use and to promote education; guidelines and suggestions about the media, for public relations.

## **4.2. Stakeholders**

Stakeholders consist of beneficiaries, target groups, and partners. They are basically people or institutions who may affect and who may be affected by the project both during and after the implementation. It is useful to classify the stakeholders for the proposed model, in two different types or groups. Primary and secondary stakeholders, first being the target groups and second the stakeholders other than the beneficiaries, or the external stakeholders.

Besides METU administration and Ministry of Culture and Tourism, primary stakeholders involve the ones who are directly affected in addition to the target groups. METU population (Table 4.1) is the primary stakeholder as they will be most affected and be the primary beneficiary of the proposed model, because of their easier access than others because of the restriction of non-METU people into the campus. Furthermore, students who make up most of the METU population should not be considered just as visitors and beneficiaries because they can take part in the management and play a significant role in the model's sustainability. In addition to METU population, target audience include groups of visitors instead of individuals, such as the school groups from all around the country. Since there is not such an approach and application, especially in this scale in Turkey, at the moment, schools will be interested in the educational value of the trail. The most important feature of the proposed target groups is that, they consist mostly of non-experts in the fields of biological sciences, fields related to archaeology, geological sciences etc.

Secondary stakeholders consist of the department of Settlement Archaeology, the METU Museum, the Science and Technology Museum at METU, institutional bodies like METU administration and its bodies, which will take part in management, maintenance and the implementation, such as Office of Forestation and Landscape Planning, Directorate of Construction and Technical Works, Office of Research Coordination. Other secondary stakeholders are NGOs, which are concerned with environmental and heritage education, conservation of the natural and archaeological heritage.

Table 4.1 Population figures of METU <sup>72</sup>

|   |
|---|
| Administrative Staff : 1822   |
| Academic Staff : 2651   |
| Students : 22643  |
| METU School Students and Staff (primary, secondary and high education) : 2129 |
| Teknopolis Staff : 3000   |
| Other Staff : 771   |
| Residents in the lodging : 1260   |
| <b>Total : 34276</b>  |

### **4.3. Aims, Objectives, Guidelines of the Trail**

#### **Goals and objectives of the trail system**

The overall aim and goal is to raise awareness for the protection of the archaeological and natural resources in order for a substantial protection of them at METU Forest.

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<sup>72</sup> 31. Orman Amenajman Başmühendisliği, 2007

Main Objectives are:

- To educate public with a wide range of target group
- To draw attention and interest to the subject –not necessarily an education value
- To put METU area’s potential depicted in Chapter 3 to good use

Minor - objectives:

- Successful interpretation of the archaeological data and natural environment
- Successful presentation of the archaeological remains
- Good attraction, facility and activity design to generate valuable leisure time
- Successful activity design that contains educational value
- Make the area accessible

General Guidelines

- Minimum intervention and change in the area while designing and implementing the trail system; the routes, the signs, the points of attraction etc.
- Keeping the attraction on the tracks without intervening in the woods area in order not to disturb wild life.
- Frequently monitoring of the site for the best maintenance.

#### **4.4. Proposed Routes**

There are two proposed routes in the trail system, one long and one long, with different features and attraction points (Fig 4.2.). They are neither a substitute for

each other, nor the short and long version of each other. They are designed to comprise most of the features of the METU area and to make use of them.

#### Short route – 5 km

The short route is a 5 km trail with the interpretive signs on mostly environmental interpretation and issues together with the archaeological site of Yalıncağ. It consists of 10 stops with interpretive signs, a bird hide, a recreation station and the tale of geology. Going along into the woods of METU forest, it aims to introduce the visitor the fantastic world of birds, wild flowers, trees, and habitats of METU forest, together with miseries of the 2600-year-old site of Yalıncağ.

Since it is shorter than the other route, and involves less slopes. It aims to reach more children and school groups than the longer route. In this context, there are more activities and attraction for school groups with learning goals that fit to the present curriculum guidelines.

#### Long route – 10 km

The Long route, a 10 km trail, is designed to include the geological features and archaeological site of Koçumbeli to the trail system. The fact that the geological features such as visual outcrops, stone quarries, and old limekilns are at the southern and higher part of the campus away from the trail entrance makes the Long route long. It contains 18 stops with interpretive signs and two optional off-loop routes; one for a scenery view, and one for the dam lake. It aims to benefit from the beautiful scenery of METU hills, the geology coming out to show himself, a very important archaeological site for the early bronze age; Koçumbeli.

Long route is more advance in terms of hiking because it takes time and there are considerable slopes to walk. It is not a track just for professional hikers; however, short route should be preferred when the primary or secondary school children groups, or families with young children are considered.



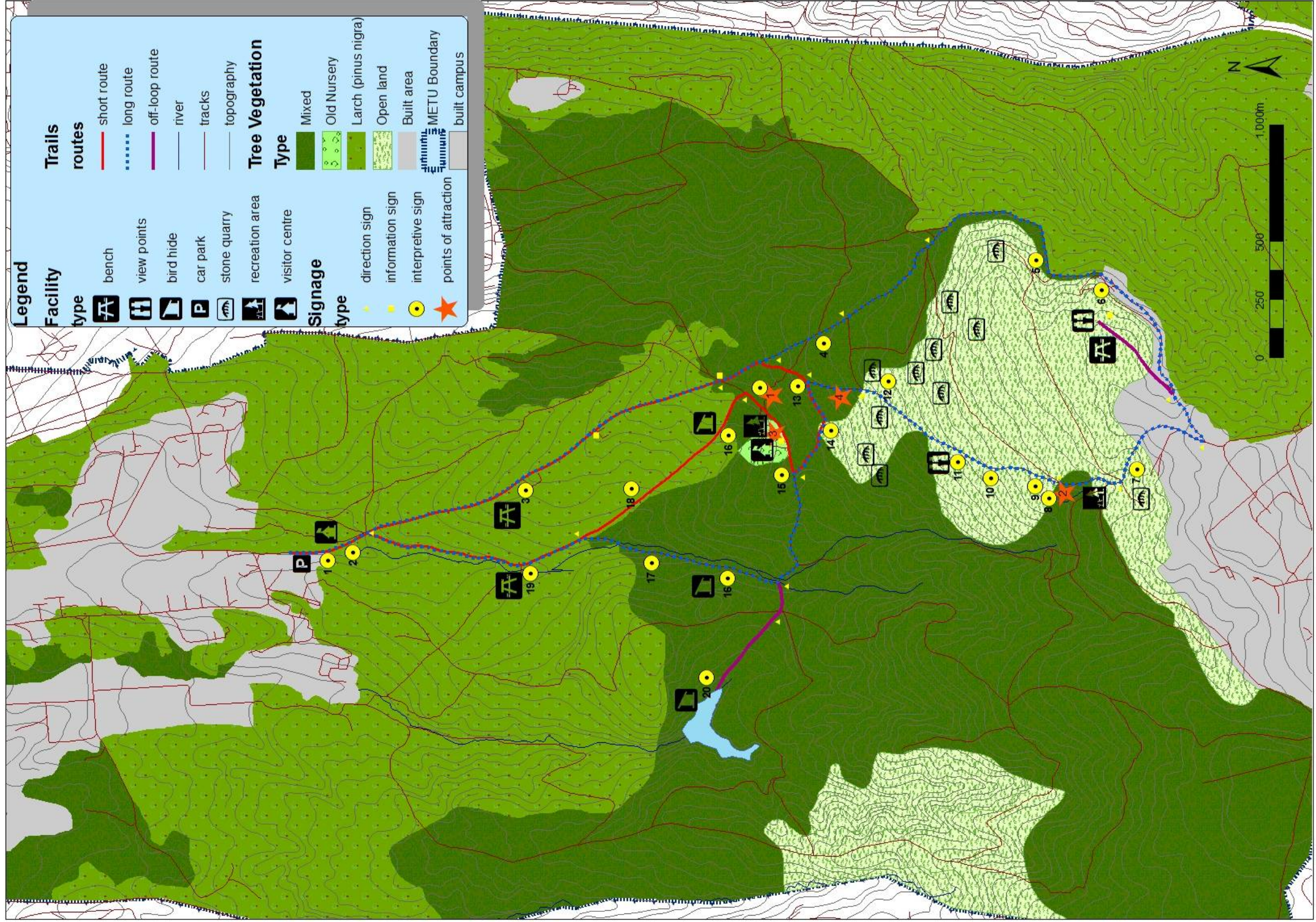


Figure 4.1. Proposed Trail Plan



## **4.5. Stations and stops**

### **4.5.1. Signs and the discourse**

#### **Guidelines for the signage**

##### **■ . Avoiding overuse**

The signs shouldn't be intrusive in the natural environment. In order to prevent that, the signs should be put in intervals, which do not allow more than one interpretive sign visible at a time.

##### **■ Creating attractiveness**

The signs should attract the visitors to make them stop to read or look at them, and spend as much time in front of a sign as possible. In order to accomplish the overall aim, they should arouse curiosity so that learning can occur. Visual aids or graphics, gain importance in this stage since they play the primary role in the design of the interpretive signs.

##### **■ Obtaining Brevity**

Similar to the reason above, for a successful learning, the interpretations and messages should be brief, uncomplicated and direct.

##### **■ Increasing clarity.**

Clarity is one of the most important guidelines in order to make the signs effective. Clarity is easier to obtain if the sentences are short and if technical terms are avoided.

##### **■ Design**

The notion of "people don't read text" is the driving force that the signs should be more visual based rather than being text heavy. The text should be hierarchical. The "title" or what the sign is about should read from a distance and followed by the sub-text.

#### ■ Materials

Materials used to build the signs should fit in the environment and should be environmental friendly. This is more important than them being durable. Wooden beams for the pillars of the interpretive signs and carved wooden plates on wooden sticks for the direction signs. There is also need for protective finishes and coating, which can be done by environmental friendly materials like resin or powder coating.

#### ■ Location

The general distribution of the panels is shown in the trails plan. As to their position locally, the panels must be set slightly off the tracks so that visitors of the trail do not block the way of other users of the tracks.

### **Signs as components of the Trail System<sup>73</sup>**

There are three types of signage in the trail system: interpretive signs, informative signs, and direction signs. Interpretive signs give relevant explanations and relationships of the information by using appropriate media, rather than giving direct and only factual information. Information signs, on the other hand, “communicate the factual information” without any interpretation. Introductory signs at the beginning of the trail are of those signs. Directions signs are basic signs with arrows and as such media to direct visitors to destinations or attraction points, and keep them on the route and direction they wish.

Interpretive signs are also divided in itself according to their content and subject. As stated earlier in this chapter, the trail system structure consists of three main subjects; archaeology, geology, and nature (Table. 4.2). Visitors will see the reflection of this structure on the signs, which will be on specific subjects with their sub-titles such as; nature interpretive sign with a title of “Birds of METU”<sup>74</sup>.

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<sup>73</sup> See Fig.4.2 for the locations of the signs, and Table 4.2 for the purpose of the signs

<sup>74</sup> See Table 4.2

Table 4.2 The purpose of the interpretive and information signs

| No. | Name/Title                          | Purpose   |
|-----|-------------------------------------|---|
| 1   | Welcome to METU Forest              | Introduce visitors to the trail system, provide a brief guide to the routes, attraction points, signs, facilities, and activities   |
| 2   | What to Find                        | Introduce visitors to the resources of the area and give specific information about what visitors will find here in this sense  |
| 3   | Mother Nature                       | Focus on the natural resources topic, and give detailed interpretation of them  |
| 4   | Trees around you                    | Introduce visitors to the trees that they can see through this part of the trail  |
| 5   | The Ground You Are Walking On       | Introduce the basic concepts of geology   |
| 6   | Old Lime Kilns 1 & 2                | Introduce the old lime kilns and how they operated  |
| 7   | Extracting Lime                     | Explain the processes of lime production: quarrying the lime stone, extracting lime from the stone, and disposal of the waste   |
| 8   | People Lived Here 5000 years ago.   | Introduce the basics of archaeology and human explosion of the landscape  |
| 9   | Koçumbeli Archaeological Settlement | Introduce to the Archaeological Site of Koçumbeli, with interpretation of its finds and layout plan   |
| 10  | Shrubs and Scrubs Around You        | Introduce the shrubs and scrubs that visitors can see through this part of the trail, explain the significance and differences so that visitors can differentiate the various species |
| 11  | The Forestation of METU             | Introduce the Forestation Project of METU in 1960s, and give location information through the silhouette of Ankara  |
| 12  | Stone Quarries                      | Give information about the lime stone quarry and give interpretation of the marks and elements of it. Introduce the ancient stone quarries in general and in the vicinity             |
| 13  | Yalıncağ Archaeological Site        | Introduce to the Archaeological Site of Yalıncağ, with interpretation of its finds and layout plan  |
| 14  | Geology of Ankara                   | Introduce the stratigraphy and the rocks of this part of Ankara   |
| 15  | Mammals of METU                     | Introduce visitors to the mammals that live here in the METU Campus Area  |
| 16  | Birds of METU                       | Introduce visitors to the birds that migrate through, live, and breed here in the METU Campus Area  |
| 17  | Butterflies of METU                 | Introduce visitors to the butterflies that live here, and that they might see around them in the METU Campus Area   |
| 18  | Flowers of METU                     | Introduce visitors to the flowers that they might see in the METU Campus Area   |
| 19  | Amphibians of METU                  | Introduce visitors to the amphibians live here in the METU Campus Area, and to the river ecosystem  |
| 20  | METU Dam Lake                       | Give information about the METU Lake and introduce the wetland ecosystem together with the water birds  |

Following is the list of interpretive and introduction signs with their numbers, titles and descriptions.

No. 1. Welcome to the METU Forest<sup>75</sup>

This will be the welcoming sign. First of all, it will provide a map (Fig.4.1) to show the trail system, the attraction points and signs, and of course to tell the visitors their location. Second, an introduction to the trail will be given followed by a description. The objectives of the project will be mentioned. It will give a brief guide to the interpretive signs, routes, attraction points, activities, and visitor centres. General warnings, cautions, attention comments and suggestions will be given here. As a summary, this is an introductory sign for the facilities, and the attributes and features of the trail system rather than the resources in the METU Forest.

Location of this sign is right at the entrance of the trail after the car park (Fig. 4.1.).



Figure 4.2. Proposed entrance of the interpretive and educational trail

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<sup>75</sup> See table 4.2 for a summary of the purpose of the signs



Figure 4.3. The location for the interpretive sign no.2

### No. 2. What to Find Here

Brief information will be given about what the trail system presents in terms of resources rather than facilities. The concept will be organised under the three subjects; archaeology, nature, and geology; and what the visitors should expect to find will be detailed accordingly. For example as natural resources it will be listed that there are interpretive signs and activities about the trees, butterflies, birds, shrubs of METU Forests.

Location of the sign number 2 is right before the intersection of trail routes start and end.

### No. 3. Mother Nature

It will serve as a detailed version of the "What to Find" sign in the subject of natural resources. It will give an overall interpretation of the natural resources around us, free from the trail system or the METU Forest. It includes interpretations about



Figure 4.4. Location for the sign no. 3 with picnic tables

concepts like ecology, ecosystems, habitats, biodiversity, how we are as humans linked to it, and our impact on the nature. There will be diagrams, drawings, and flowcharts as visual aids.

Location of the sign no.3 is on a higher terrain slightly off the trail, where there is space for a picnic bench to rest while enjoying the beautiful view of the green.

#### No. 4. Mammals of METU

This sign will be giving interpretation of the mammals that are seen in the METU Forest with photos and drawings. It will give information about their habitats and their nutritional behaviours.

#### No. 5. The Ground You are Walking On

There will be basic drawings and diagrams to demonstrate the basic concepts of geology; such as stratigraphy, geomorphology and types of rocks. There will be relations to the visible environment the visitors observe, and examples for demonstration. There will also be a section about how humans exploit their



Figure 4.5. Old Stone quarry and the long route

surroundings in terms of geology. The big stone quarry here will help to demonstrate the quarrying impact on geomorphology.

Location of the sign no. 5 is down the slope in front of the big old stone quarry on the south east of the area.

#### No. 6. Old Lime Kilns 1 & 2

This sign will be about what the lime kiln is, how these old lime kiln operated. It will give a quick journey to the old lime kilns with diagrams, and illustrate in which ways first lime kiln is different from the second, and why. It will give summaries on why people used lime kilns and why the kilns are abandoned now. The sign will also contain information about ethnoarchaeology and explain the basics of it on the first lime kiln since it is demolished exposing its structural and architectural components.





Figure 4.6. Lime kiln 1



Figure 4.7. Lime kiln 2

Location of the sign no. 6 is in front of the first lime kiln which is 100m south west of the second.



Figure 4.8. One of the old stone quarries

#### No. 7. Extracting Lime

This location of this sign will be where the 3 stages of producing lime is observable. There is two old quarries where lime stone is extracted, an old lime kiln in the middle of them, where the lime was produced from lime stone, and the waste deposit of the process. There is also the canal where the wastewater was disposed. There will also be explanations on why this kiln is also different from the other two.

The sign will be on the route where the visitor can see all of the components of the lime producing process. There will be demonstrations of diagrams and drawings of how the process works on the sign.



Figure 4.9. The deposit of lime from the extraction process, and the canal for the waste water on the right hand side of the deposit



Figure 4.10. Lime kiln 3





Figure 4.11. Koçumbeli Archaeological Settlement

#### No. 8. Koçumbeli Archaeological Settlement

This sign will contain interpretation of the site as much as the evidence allows. The content of the sign can be divided into several sections. First, there will be an introduction section to introduce the site, put it in its place in the chronology, and explain why this site is important for Anatolian archaeology. As to the interpretation of the site, there will be a finds section where photos of the significant finds and interpretation of their usage are. There will be a section for the interpretation of the layout plan of the settlement. As it will be discussed in the presentation of the site in the latter sections, the interior and outer spaces will be covered with different colours of pebbles. This presentation will be interpreted on the sign with interpretation of the different structures, as the limited evidence allows us to.



Figure 4.12. The location for the sign no. 9 on the route

No. 9. People Lived Here 5000 years ago.

This sign will be an interpretive sign about the early exploitation of nature and geology by humans, and how archaeology is studying traces of their exploitation. This sign is an introduction of the basics of archaeology and why we should protect it and care about it. This sign is important because of its integrating feature of nature geology and archaeology. It will stress that archaeology is important because it helps us to understand the human impact on the environment through time.

Location where this sign will be is on the route where a wooden track is leading the visitors to Koçumbeli Archaeological Site.



Figure 4.13. One of the shrub species of METU

#### No. 10. Shrubs and Scrubs Around You

This sign will be the shrubs and scrubs version of the sign no. 4., e.i., it will be about the shrubs and scrubs that is observable around the trail. It will explain and demonstrate which plants are called trees and which shrubs, what the similarities and the distinctions are, in addition to the interpretation about how to differentiate the shrub and scrub species.

#### No. 11. The Forestation of METU

This sign will give information about the forestation of the METU area in 1960s. There will be photos from the project and quotes from the President of METU of the time, Kemal Kurdaş.





Figure 4.14. The location off the route for the sign no. 11



Figure 4.15. Silhouette of Ankara and the METU Forest

This sign is located, slightly off the route, on a spot that the terrain is climbing and is open on the front. So, it has a beautiful open view of the northern part of METU and a considerable part of Ankara. There will also be a panoramic silhouette of the skyline of Ankara, and location of the important landmarks and places spotted on it for people to enjoy the view.





Figure 4.16. An old stone quarry

#### No. 12. Stone Quarries

This sign will be one of the two follow-ups of the sign no. 5, the ground you are walking on, which is about basics of geology in general. Since it will be in front of a recently old lime stone quarry, it will give an insight to quarrying by the help of it with explanations and demonstrations of observable marks and elements of quarrying. It will also mention about the possibility of the ancient quarrying on the area, with quotes from Koşay's investigation and excavation of the quarries in close proximity. There will be given interpretation of how they might look like in terms of their size and marks on them.

The location of the sign will be off the route, right in front of the quarry, to encourage people to observe thoroughly, get close and touch.



Figure 4.17. Yalıncağ Archaeological Settlement

#### No. 13. Yalıncağ Archaeological Site

This sign will represent the site in the same structure as in the sign no. 8, Koçumbeli Archaeological Site. Similarly, there will be an introduction section to introduce the site and emphasize its importance; a finds section with photos and drawings, a layout section with excavation photos, because there is not a proper drawing of the plan of the settlement. With the help of the photos of the newly unearthed settlement, the importance of its protection will be stated since the column seen in the photo could not have survived to our time.

There will be two of this sign, one will be located on a higher place southern side of the settlement, on the long route; another on northern side of it, on the short route. There will be wooden track accessible from both signs into the middle of the site.





Figure 4.18. Looking towards South, location for the sign no. 14 before the aisle of rocks

#### No. 14. Geology of Ankara

This sign will be another follow-up for the sign no. 5, the ground you are walking on, which is about basics of geology in general. This will give information about the geology and stratigraphy of Ankara and particularly this part of Ankara. It will give an interpretation of rock types that are extracted in the vicinity of Ankara as an introductory of the Geology Aisle.

The location of the sign will be at the beginning of the Aisle of Rocks so that visitors can know what they are seeing in the aisle.



Figure 4.19. Location for the sign no.15

#### No. 15. Trees Around You

This sign will be placed on the short route where the tree garden is. Visitors will be observing the trees of the garden while examining the sign. This sign will be interpretation for the trees people see around them by presenting the relationship among them and by making it easier to distinguish among each other. There will be close-up diagrams and photographs of the leaves of trees so that they can identify when they see one. There will be small, easy-to-make activities for visitors to make while they continue walking on to the northern part of the trail.

Location of sign no. 15 is on the short route where there is an access to the Tree Garden.



Figure 4.20. Photo taken from the location of one of the birds of METU signs

#### No. 16. Birds of METU

This is the sign for the birds that can be seen at METU Campus Area. There will be information about the immigrating, resident, and breeder birds with their significant features and photos. With the help of their habitat and behavioural interpretations, and photos visitors will be encouraged to do some bird watching along the routes and in the bird hides.

#### No. 17. Butterflies of METU

This is a similar sign to the sign no. 16, except for this is about the butterflies that live in the METU Forest. The structural layout and topical structure will be the same as the previous sign.





Figure 4.21. Photos of some butterflies of METU

No. 18. Flowers of METU

This will be again similar to the previous two signs, no. 4 and no. 10, which are about the trees and shrubs of the METU Forest. The structural layout and topical structure will be the same as these two signs.



Figure 4.22. Photos of some flowers of METU

No. 19. Amphibians of METU

This will be similar to the signs no. 15, 16 and 17. This will be the amphibians version of these signs. In addition there will be more information about their habitats, particularly the river ecosystems.

Location of the sign will be off the route, into the woods, close to the river





Figure 4.23. Location of the sign for amphibians and river ecosystems

#### No. 20. METU Dam Lake

This interpretation sign will give information about the METU Lake and give interpretations about wetland ecosystems and what kind of life we can observe in these ecosystems. There will also be information about the water birds and their features together with nutrition behaviours.

This sign will be at the end of the off-loop-route, beside the lake.



Figure 4.24. METU Lake, location of the sign no. 20 and the off-loop-route

#### **4.5.2. Points of attraction**

##### Yalincak Archaeological Site<sup>76</sup>

Yalincak Archaeological Site is one of the most important stops of the trail. Cleaning the site in terms of weeds and shrubs is of first priority. The plan of the settlement and walls of the structures will be traceable in this way. After the cleaning of the weed plants, the walls should be consolidated wherever possible. A boardwalk built around the structures will provide visitors to walk between the structures. Since there is not a detailed excavation report and an adequate drawing of the remains, it is not possible to make different signs for different compartments of the settlement. That is why visitors will be informed with an overall sign that is put right next to the track where the wooden track starts and leads into the settlement.

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<sup>76</sup> Point of attraction no. 1. See figure 4.2

### Koçumbeli Archaeological Site<sup>77</sup>

Koçumbeli Site is another focal point for the trail. A boardwalk off the trail is again necessary to lead to and through settlement (Fig. 4.25.). Koçumbeli site should be cleaned from the weeds and shrubs and the walls should be consolidated. The wooden track should continue around the settlement instead of through it because the unstable remaining walls can be hazardous to both visitors and archaeology. At the southeast corner, where the visitors will meet the ancient settlement first, they will have opportunity to see from a higher level, thanks to topography.

Like Yalıncağ, Koçumbeli is missing detailed excavation reports, furthermore, they are not excavated with a proper methodology. One of the results of this is the lacking information of the context of finds, and correspondingly, the functions of the structures. After cleaning of the invasive plants (but not trees), the floors inside the structures will be covered with different coloured pebbles in order to show up the plan more and emphasize the interiors and exteriors.

### Yalıncağ Recreation and Activity Area<sup>78</sup>

There is a good potential of Yalıncağ area as a point of attraction (Figs. 4.26 and 4.27). On the other hand there are also problem elements that needs actions to be taken; such as cleaning the area from waste disposals (Fig. 4.28.).

The actions to be taken in order to turn this problem area to a recreation and an activity are listed below.

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<sup>77</sup> Point of attraction no. 2. See figure 4.2

<sup>78</sup> Point of attraction no.3. See Figure 4.2





Figure 4.25. Koçumbeli Archaeological Site presented. (Source for the satellite image: Google Earth. Source for the site plan drawing: Unpublished research of Jan-K Bertram.)

- Picnic tables and pergolas for recreational purposes, and to be used in educational activities by school groups will be placed at several spots,
- The concrete structure that remains idle and looks unpleasant, will be used as an experimental archaeology tool (Fig. 4.30). Part of it will be filled with the local soil, burying replicas of artefacts that are recovered near archaeological sites. It will be used as an excavation demonstration so that methods of excavation and recording processes can be practiced. In the other part will be used as a demonstration of depositing of the archaeological sites by creating contexts and burying them.
- A “barefoot activity” facility will be designed as a short track in the recreational area, for people to sense the elements of nature by their bare feet. (Fig. 4.31.).
- The spring or fountain will renovated and designed to be a more aesthetic and a multi purpose fountain for visitors for drinking, and using for the activities.
- The half-demolished structure that was used to be a warehouse for the former nursery will be demolished and replaced by a prefabricated structure. It will function as a supply house for the activities, and temporary multi topic exhibitions of the trail system will be held.
- A variety of local species of trees and shrubs will be planted in a part of the old nursery as an exhibit of all the trees in one place (Table 4.3.). In addition to the interpretive sign on trees and shrubs of METU, there will labels for the names of the plants individually.

Yalincak area is proposed to host different kinds of activities and attraction points (Fig. 4.29.). It is a station, where visitors can have breaks, enjoy the nature and do recreational and learning activities. It is comprised of the following:

- experimental farming fields,
- tree garden,
- educational and experimental grounds,
- recreation area and
- activity and exhibition centre

Table 4.3. List of Tree and Shrub Species that will be exhibited in the Tree Garden

|                                |                          |
|--------------------------------|--------------------------|
| <i>Acer negundo</i>            | Auratum Ash-leaved Maple |
| <i>Acer platanoides</i>        | Norway Maple             |
| <i>Aesculus hippocastaneum</i> | Horse-Chestnut           |
| <i>Alnus glutinosa</i>         | Black Adler              |
| <i>Cedrus libani</i>           | Lebanon Cedar            |
| <i>Fraxinus excelsior</i>      | Common ash               |
| <i>Juglans regia</i>           | Common walnut            |
| <i>Juniperus oxycedrus</i>     | Prickly Juniper,         |
| <i>Malus sylvestris</i>        | european wild apple      |
| <i>Pinus nigra</i>             | European Black Pine      |
| <i>Pinus sylvestris</i>        | Scotts pine              |
| <i>Platanus orientalis</i>     | Oriental plane           |
| <i>Quercus cerris</i>          | Turkey oak               |
| <i>Populus alba</i>            | White Poplar             |
| <i>Populus nigra</i>           | Black poplar             |
| <i>Prunus mahaleb</i>          | St Lucie cherry          |
| <i>Rosa canina</i>             | Dog nose                 |
| <i>Rubus sanctus</i>           | Blackberry               |
| <i>Salix babylonica</i>        | Babylon Willow           |
| <i>Salix alba</i>              | White Willow             |
| <i>Taxus baccata</i>           | common yew               |





Figure 4.26. Yalıncaak area with its elements. (Source of the satellite image: Google Earth)



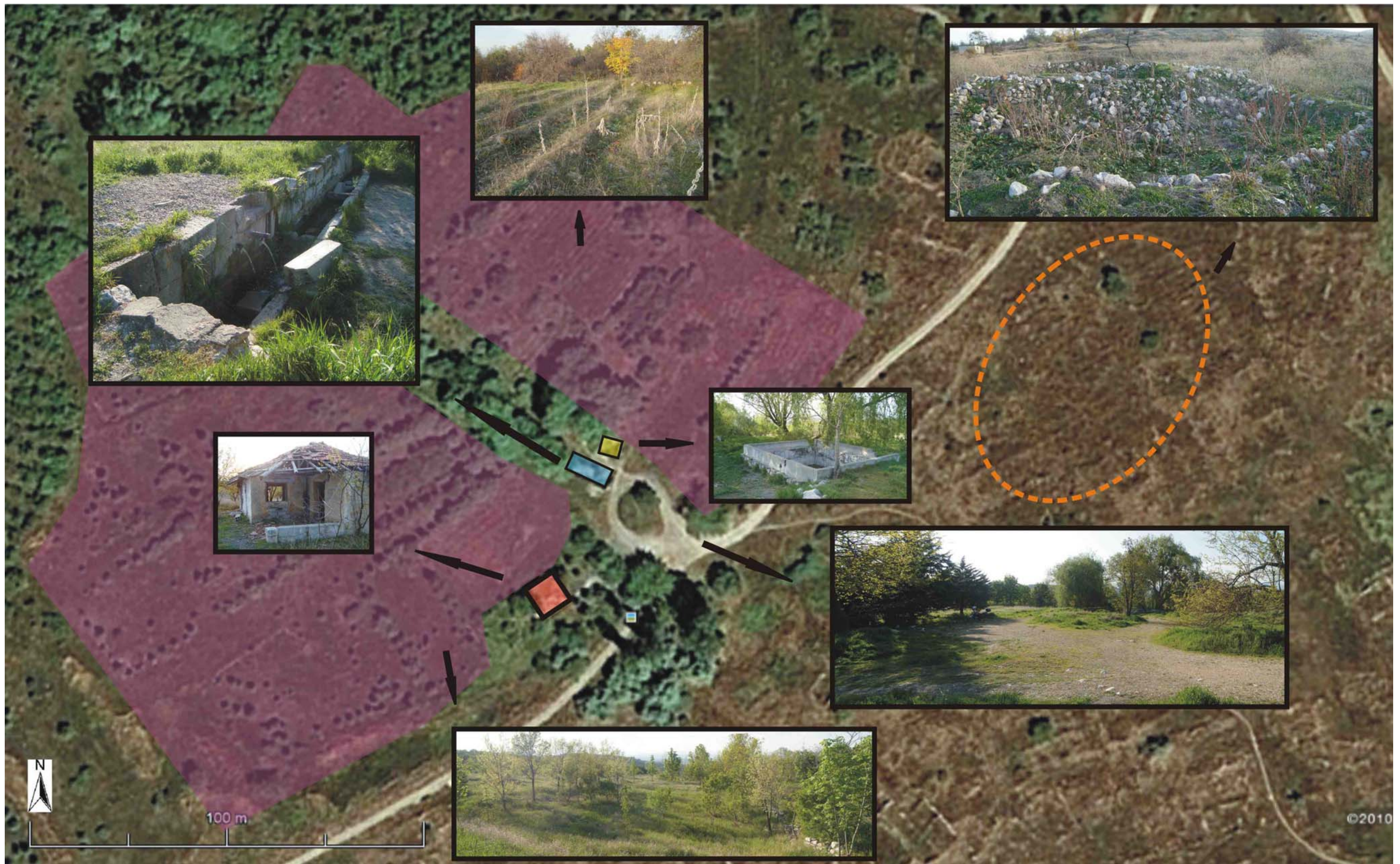


Figure 4.27. Several elements and spaces of Yalincak area





Figure 4.28. Waste disposals at Yalincak area



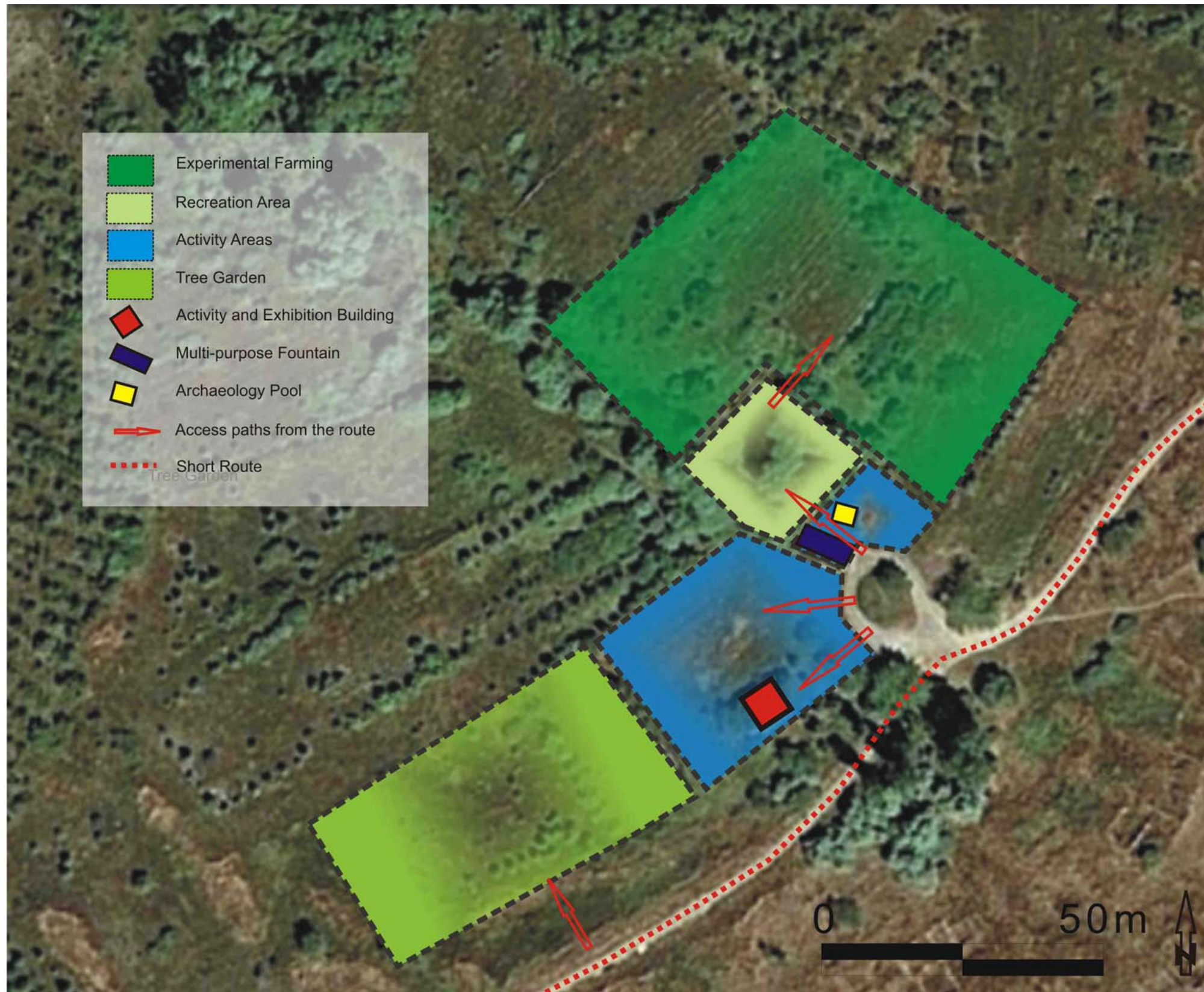


Figure 4.29. Conceptual plan of the proposed actions and activities at Yalıncağ Area





Figure 4.30. Idle concrete structure in the Yalıncağ Area



Figure 4.31. An example of a barefoot activity track. (from a website for barefoot activities: <http://www.barfusspark.info/en/>)

### Aisle of Rocks<sup>79</sup>

Geology aisle is a passageway where visitors can see and observe some kinds of sedimentary, igneous and metamorphic rock boulders and blocks such as of limestone, sandstone, andesite, marble, granite, travertine, while passing in between

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<sup>79</sup> Points of attraction no.4. See figure 4.2.



them. They can be easily extracted from the stone quarries in the vicinity of Ankara, and brought here. There are andesite quarries in Gölbaşı region in addition to limestone and marble. Travertine quarries are on the south part of Ankara, around Nallıhan and Hasanoğlan regions.

#### **4.6. Programs and Activities**

The activities that can be performed in such a rich-resource-area is limitless and countless. They can vary in purpose, subject and concept, place, and duration. They can be recreational as well as educational, including experimental activities, learning tours, which will have target audience varying from general public to school groups.

##### **Educational Activities**

Educational activities can be practiced as both activities in short periods, and workshops that are consecutive, independent from or related to each other.

Educational activities can include guided tours in which a better interpretation can be realised since there will be instant interaction. Moreover these tours may be more inclusive, adding up to the interpretations on the signs. Tours can be guided in both routes by volunteer staff or the visitor group leaders; such as teachers in the school groups case, or the person in charge for the NGO groups. In addition to the tours on long-route or short-route, or their combination; there can be specialised tours only for, such as, bird watching, archaeology, lime stone quarries, old lime kilns etc.

##### Linking Educational Activities to the National School Curricula

As far as national curricula is concerned, there are variety of key subjects and topics, in different key stages starting from 1<sup>st</sup> year, that environmental education goals in the trail system can be linked. However, it has been observed that there are very rare subjects and courses that archaeology can be linked to.

The notion of the environment and the responsibilities of people over it, and sustainability is discussed in several unit subjects of the course called “knowledge of life”, together with seasonality and change, from beginning of the first key stage.<sup>80</sup> On the other hand archaeological sites are introduced, if ever, under the subject of places to visit and tourism. On the 4<sup>th</sup> stage, however the introduction of ages and chronology paves the way for the discussion of important ancient civilizations of Anatolia. Not until the 6<sup>th</sup> key stage, do the students learn details about the ancient civilizations, ancient settlements and artefacts.<sup>81</sup> There is an activity about Çatalhöyük as an example, where the Çatalhöyük life and people are examined in detailed with lots of reconstruction drawings. However there is not any mention of archaeology neither as a profession nor as a methodology. There are activities associated with key units, but they are designed to be applied in the classroom with the aid of mostly pictures. Even in the Çatalhöyük activity sheet, there is no mention of visiting the site, or visiting the museum.

On the other hand, METU Primary and Secondary School arranges museum visits and outdoor activities beginning with the 1<sup>st</sup> key stage.<sup>82</sup> Some of the activities involved bird feeding and bird watching, tree planting festival of METU, planting their own plants in the school garden, museum visits, in the past years.

It is clear that there is a great potential to link the environmental educational activities to almost every stage, whereas the archaeological activities in the trail can be a take off for further curricular activity at schools and even more archaeology in the school books in the future.

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<sup>80</sup> Serap Gürçay (primary school teacher at METU Development Foundation School), personal communication, 2010

<sup>81</sup> For further information visit the Ministry of Education website where all the national curricula is accessible online (<http://www.meb.gov.tr>)

<sup>82</sup> Serap Gürçay (primary school teacher at METU Development Foundation School), personal communication, 2010

## **Experimental Activities**

As Saraydar<sup>83</sup> also states, imitative experiments are successful outreach tools and they are in fact educational tools most of the time.

A most common but useful and enjoyable archaeological experimental activity is on the lithic technology. There can be imitative experimental activities carried on working with stone, obsidian and chert to produce various types of artefacts. Furthermore, using these tools on various resources, such as other stones to make new tools, wooden raw materials, and even bone, may answer questions of *how* and *why* in addition to *what*. By being involved and even perform in this kind of activity, not only people can learn about various processes of lithic technology and the artefacts they see in the museums, but also the level of enthusiasm will be raised considerably.

In addition, various activities can be realised in the archaeological excavation pool, such as digging for the artefact replicas that are buried beforehand, or creating contexts and burying them and examining the process of depositing only in the winded forward way.

## **Recreational and Other Activities**

Bare foot track in the Yalıncak activity area can host an enjoyable recreational activity. Thanks to the wild and silent environment it provides with its plants and animal diversity METU Forest is already often preferred for lots of recreational and sports activities already. It is a perfect place for hiking, jogging, taking photographs, bird watching and orienteering. METU Orienteering and Navigation Team organizes competitions and events every year and lots of people of different nationalities attend them.

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<sup>83</sup> 2008; 140



Figure 4.32. Recreational furniture (Source: personal archive of Jan-K Bertram)

#### **4.7. Facilities**

Facilities of the trail will include a car park at the entrance, two drinking fountains, recreational furniture such as benches, shades, pergolas, picnic tables, sculptures that fit nature, a visitor centre, an activity and exhibition building, and three bird watching sheds (Figs. 4.32, 4.33 and 4.34.). Benches and shades can be found both along the long and short route whereas pergolas and picnic tables will be placed in the Yalıncağ Activity Area.

Visitor centre will be a tiny bungalow that will provide maps and brochures, information when needed, where as activity and exhibit building will hold a minor permanent exhibit that includes replicas of the significant artefacts from Yalıncağ and Koçumbeli Archaeological Sites.

There will be three bird watching sheds, or bird hides in the woods area at the northern part of the trail where both short route and long route visitors could visit (Fig. 4.2.). The sheds will help visitors watch birds more effectively and without disturbing birds since the visitors will not be mobile. There will be learning materials about birds and their activities in the sheds for people to observe like in the example of Greenwich Peninsula Ecological Park (Fig. 4.35).





Figure 4.33. Wooden Sculptures (at Degirmendere, Kocaeli)<sup>84</sup>



Figure 4.34. Details from the bird hides at Greenwich Peninsula Ecology Park, UK

<sup>84</sup> From personal archive of Oguz Lemi Tuna



Figure 4.35. Details from the bird hides at Greenwich Peninsula Ecology Park, UK

#### 4.8. Public Relations and Outreach

After the implementation of the trail system, first thing to do should be the announcement of it. Announcements can be made in various ways. An announcement poster can be prepared and posted to departments, library, dormitories and shopping area of METU and in other universities where applicable. In addition to posters, flyers also would be a useful tool for announcing when distributed to the places listed above. Moreover, official letters can be sent to the departments via inter unit communication channels of METU. An announcement on the homepage of the METU website can also be effective. After the announcement public relations and outreach can develop in various ways for various time periods

##### Brochures

Brochures and maps are necessary tools for the visitors while they are experiencing the trail. Moreover they are most common remembrance objects from the places

visited. That is why brochures should be designed not only to guide visitors during their visit but also as an object to be kept after the visit.

### **Tours**

Guided tours are not only useful tools for educational purposes, but also an efficient way to communicate people and gain feedback since it's a person to person interaction.

### **Website**

A website is necessary both because of its high accessibility and success at communication (if it is designed properly). More material and discussions than those on the site can be delivered by the webpages. In addition, announcements of events and activity programs can be made in order to keep people updated. There can also be forums for people to share further information and sight and for discussions to update or improve the trail.

A web based GIS map, in which people can click on and learn about components of the trail system, can be prepared. Further interpretation in addition to the ones on the signs, can be delivered by adding up to the attributes of the components that are attached to them.

### **Lectures at Schools**

Lectures at the schools of all degrees are another necessity for an outreach program, especially because school groups are one of the primary beneficiaries of our case. By this way more and more student and teacher can be informed about the trail, and the recourses. As a result, the number of visits can increase together with awareness about the protection of the resources.

Similarly, NGOs can also be informed about the trail by paying visits to them and giving introductory lectures.

### **Supplementary documents for teachers**

Supplementary documents for teachers, such as informational documents and activity sheets are on the agenda of most of the museums now. For instance, Museum of London prepares detailed booklets for teachers for every key stage and even for the teachers in the special schools, which are for students who has special educational needs.

Similarly, the resources in the METU Forest can be related to all key stages where relevant, so that teachers can find it useful to visit the trail. By the supplementary documents, teachers can be guided in preparing the activities beforehand and in preparing students before the

### **Newsletter**

A newsletter, at least once a semester, can be prepared for the same purposes as other outreach programs. People can be updated about the upcoming events and informed about the past events. Each newsletter can have a theme related to the resources in the METU Forest, and have several articles about it.

## **4.9. Management and Maintenance in the Long Term**

Management and maintenance are very important for the sustainability of the trail. Management can operate through a partnership of the administrative units of METU, that are mentioned in the stakeholders section, and the relevant student clubs which are organized by students under the Office Cultural Affairs. In this partnership, they can prepare periodic management plans with the consultancy of academic staff from

the related departments such as Settlement Archaeology, Biology, and Education Departments.

Management of the vehicle circulation is an important issue that needs mention here. School and big group tours with large or many vehicles should be arranged in reservation or booking basis in order to prevent vehicle concentration. It should be made sure that they don't cause problem in the campus traffic. Certain times of the year and the day need special consideration in this sense. For instance, when there are career planning fairs, education fairs, and exhibitions for the presentation of METU to prospective students in the conventional centre, there are high consideration of visitors with large groups and big tour buses from all over the country, in the campus. Another busy time that should be considered is the rush hour when the buses take and drop off the staff and students of METU.

### **Staff and Volunteering System**

In addition to the Office of Forestation and Landscape Planning staff, two staff can be assigned for the visitor centre and activities and exhibition building. There can be a volunteering system established for the trail. The staff can be assisted by volunteers and also can be in charge of arranging and organising the volunteering system. Although volunteering in Turkey is not as common as in European countries, this trail can be the start to spread it. The volunteering system can operate for the basic maintenance jobs at the points of attraction and the visitor centre. Volunteers can give guided tours to the visitors, assist with or organize the activities, and assist the staff in the visitor centre and for the maintenance in the woods. They can consist of students from particularly METU, and other universities in Ankara. Even students from higher education can volunteer in those jobs. Volunteering system can also be organised by the student clubs in the universities such as METU Archaeology, Nature, Education, and Bird Watching Clubs. In addition, partnerships can be established with the high schools and equivalents, so that students who would like to join can volunteer



## CHAPTER V

### CONCLUSION

This thesis mainly discussed one question: how to present; and case specific: how to present the resources of METU Forest in an integrated approach. Other major questions and discussions in this thesis are either leading to, or resulting from the problematic of presentation. One of the most important “lead-ers” is the question that, what the best way is to make people aware of the rich and endangered resources of METU Forest, and how we can make use of these to raise awareness for the protection of them. This leads to the pursuit of the successful presentation. On the other hand, one of the most important resulting questions is how we can make successful interpretation that also contains educational value -because good interpretation is a key to good presentation. Finally, another important question that this thesis tried to answer is how integrated presentation of natural and archaeological resources is possible.

METU Forest is a unique environment in Ankara, with its proximity to the city centre, with its size, with different natural habitats, and with designated archaeological sites in it. Moreover it has a big potential for being used for environmental purposes. However, it is not known and visited by most of the METU population, and this big potential cannot be used. Moreover, there is an increasing risk of loosing or harming its resources, in the future, mainly because of the pressure of urban development. These were the triggers for the questions and discussions above, because a good presentation and interpretation is proposed as a solution and in response to them.

In consideration of the questions mentioned, after conceptual framework is set, similar cases are examined, current situation of the resources are assessed; this trail system is proposed. The overall goal of the trail is to raise awareness, which will lead to the education of the public and the preservation of the resources at METU Forest. Objectives to achieve the goal are set as the integrated presentation and effective

interpretation of the resources in the METU Campus. Finally, various guidelines for the implementation of the trail system, suggestions on the components such as the signage and attraction points are determined for accomplishment of the objectives.

In the future, further studies can be and should be published by doing more methodological researches on the resources, and even a database can be built of the data collected. More study on the artefacts of Koçumbeli has already started to be done by Jan-K Bertram<sup>85</sup> and Gülçin İlgezdi–Bertram. A detailed recovery and recording can be done on the archaeological settlements by removing the deposit of 50 years and surface cleaning. There is a substantial study on the birds and wild flowers of the METU Area although it is not an academic or scientific publication. Similarly, further studies can be done on the other plant and animal species such as insects. An intensive survey and research can and should be made for the ancient quarries in the area, as there is not even a mention of them since Koşay.<sup>86</sup>

This kind of integrated presentation for preservation and educational purposes can be applied to any excavated and studied archaeological site that is protected in its landscape. National Parks and other conservation areas that covers archaeological landscapes and areas of protected archaeological sites are the best cases to apply this kind of a proposal in a bigger scale. Most known and the most significant ones of those can be the Troia Historical National Park, Gelibolu Historical National Park and Göreme Natinal Park. There are not any applications of integrated interpretation and presentation installations for educational purposes in Turkey. So it is hoped that this study and suggested application may provide the conceptual framework and practical ideas for the similar future applications.

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<sup>85</sup> Bertram, 2008

<sup>86</sup> Koşay, 1938; 1

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APPENDIX A: METU AREA IN THE URBAN CONTEXT WITH THE PLANS AND ANALYSIS OF ANKARA

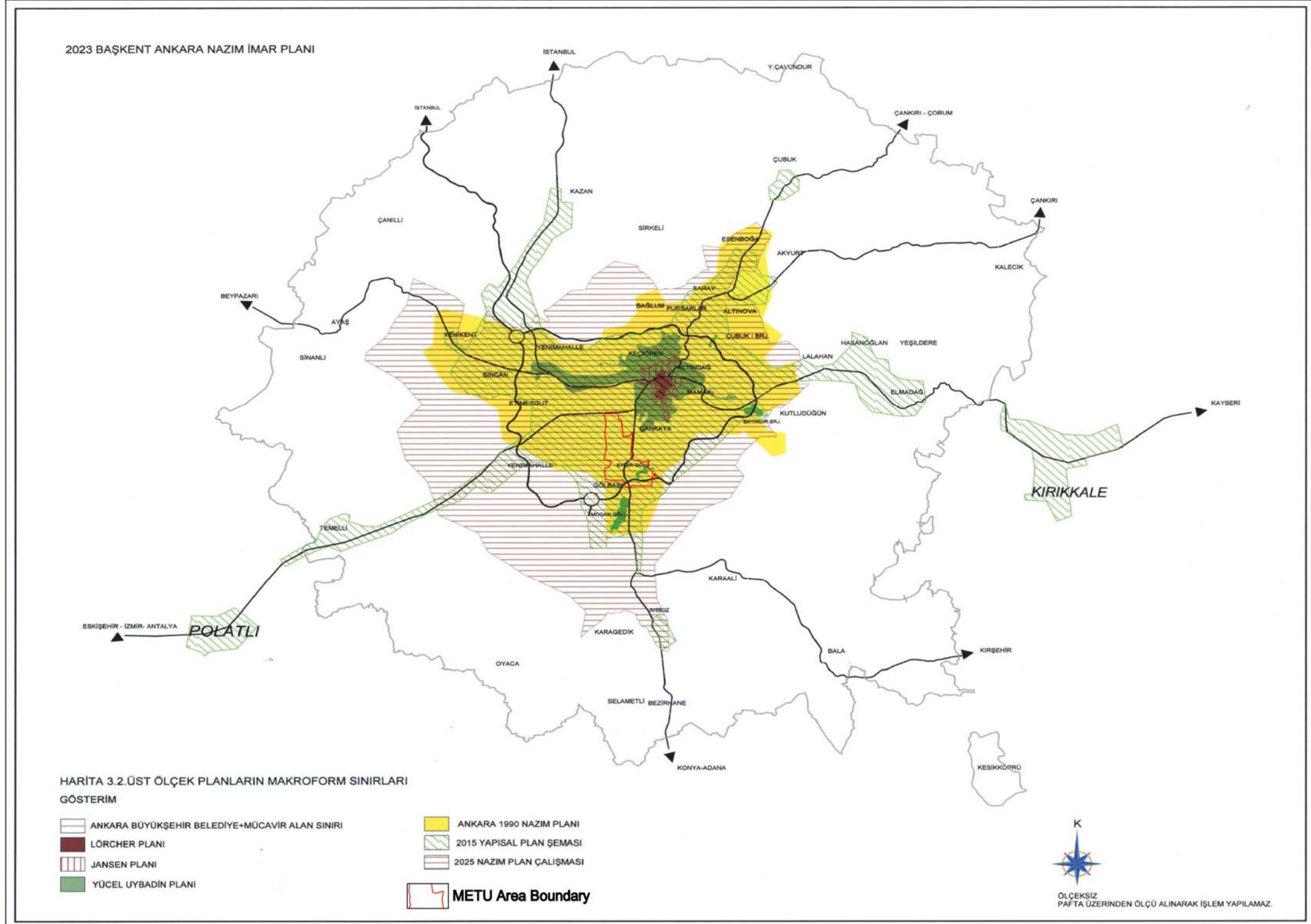


Figure A.1. Map showing urban macroform proposed in the previous plans of Ankara through the years.(Base map source: Development and City Planning Department of Greater Municipality of Ankara, 2006, 2006; 75)

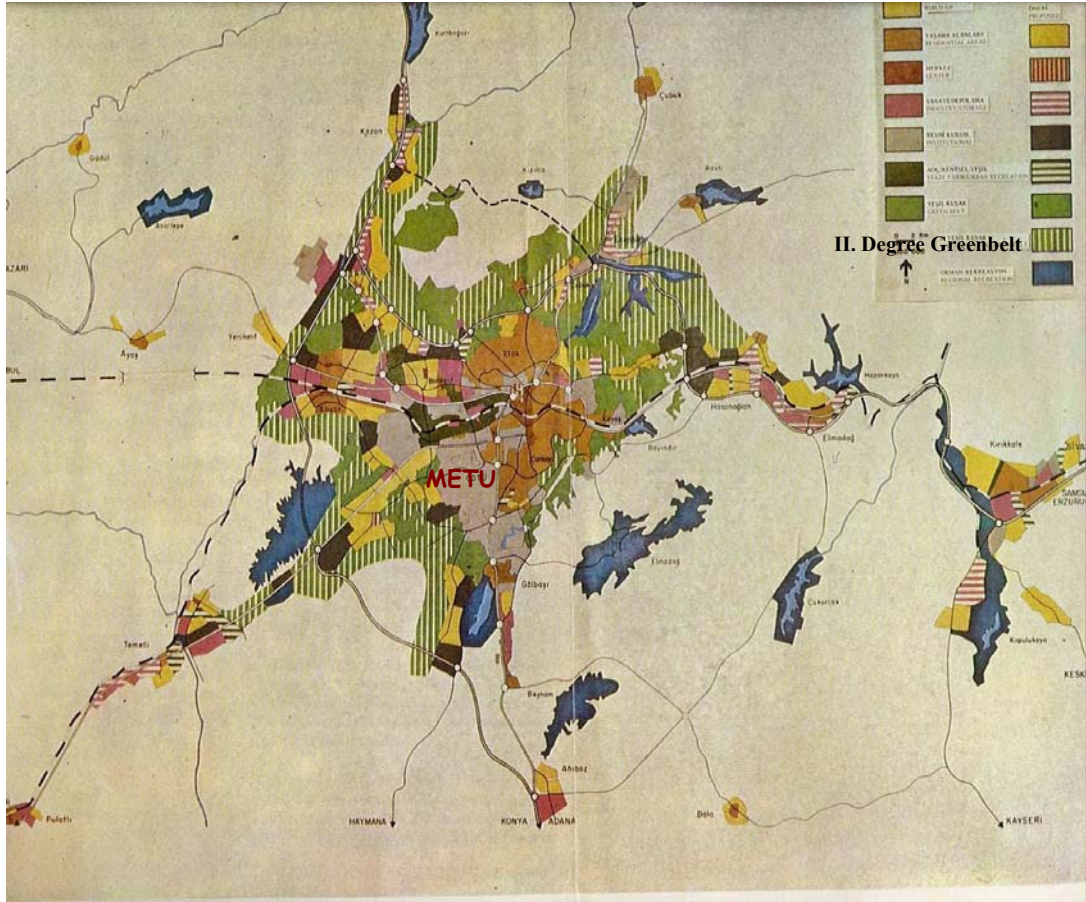


Figure A.2. 2015 Structure Plan prepared in 1986, showing proposed greenbelt (2023  
Ankara Master Plan Report, 2006; 58)



2023 BAŞKENT ANKARA NAZIM İMAR PLANI

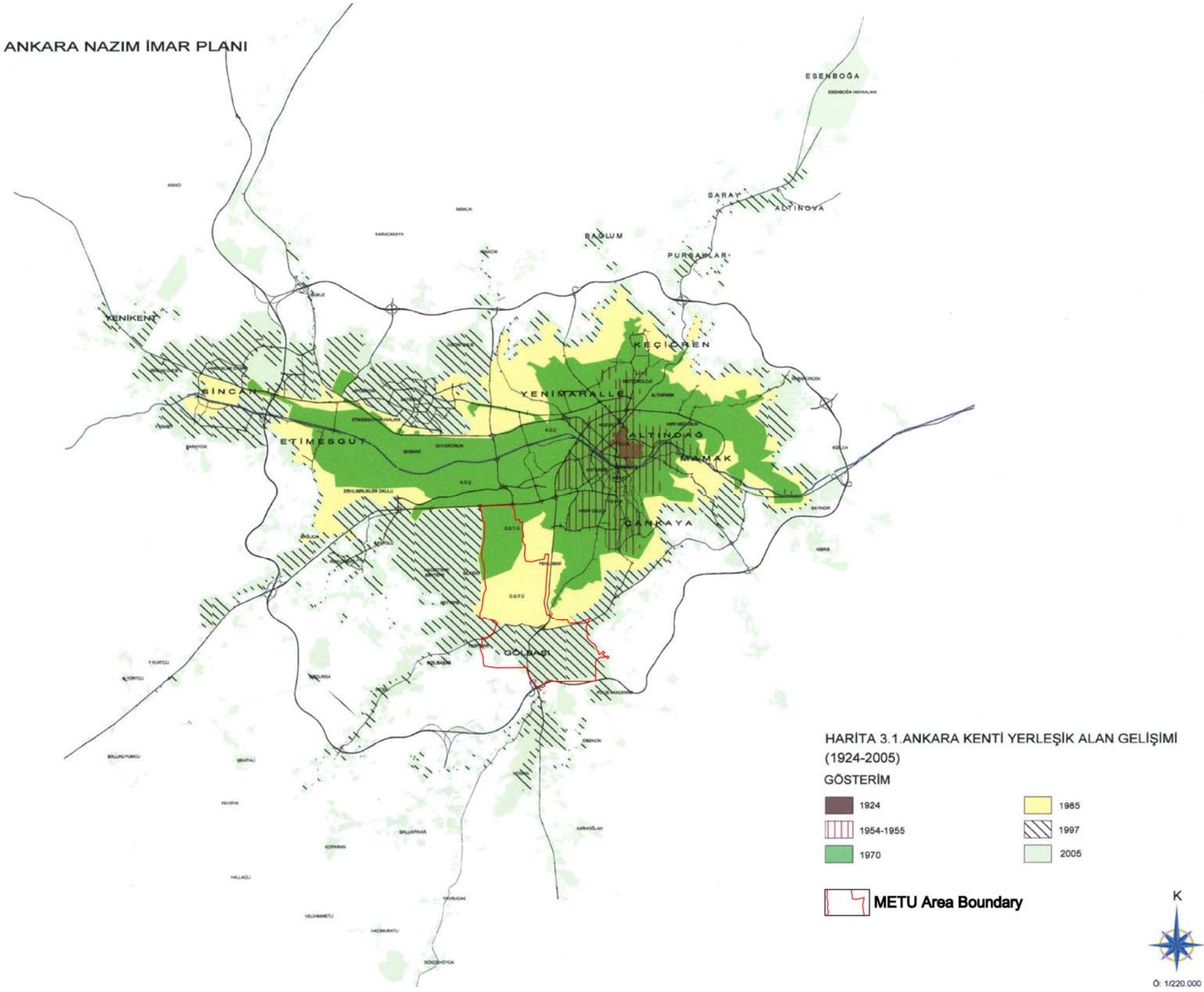


Figure A.3. Map showing urban built area development through time (Base map source: Development and City Planning Department of Greater Municipality of Ankara, 2006; 74)



HARİTA 2.7. ANKARA 1990 NAZIM PLANI KISMİ REVİZYONU ANKARA 1990 MASTER PLAN PARTIAL REVISION

**1990 ANKARA NAZIM PLANI**  
KISMİ REVİZYONU (GÜNEYBATI ANKARA)  
ÖLÇEK: 1/50 000

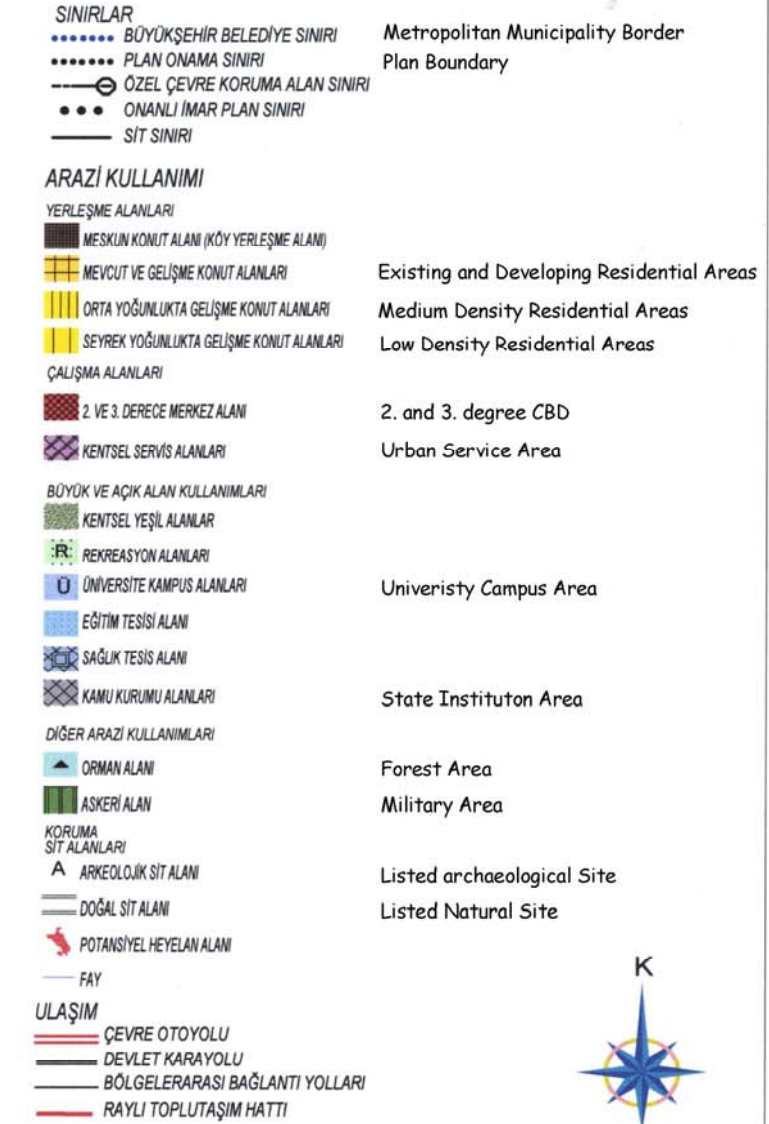


Figure A.4. Ankara 1990 Ankara Master Plan Partial Revision approved on 18.07.2001 (Base Map source: Development and City Planning Department of Greater Municipality of Ankara, 2006; 60)



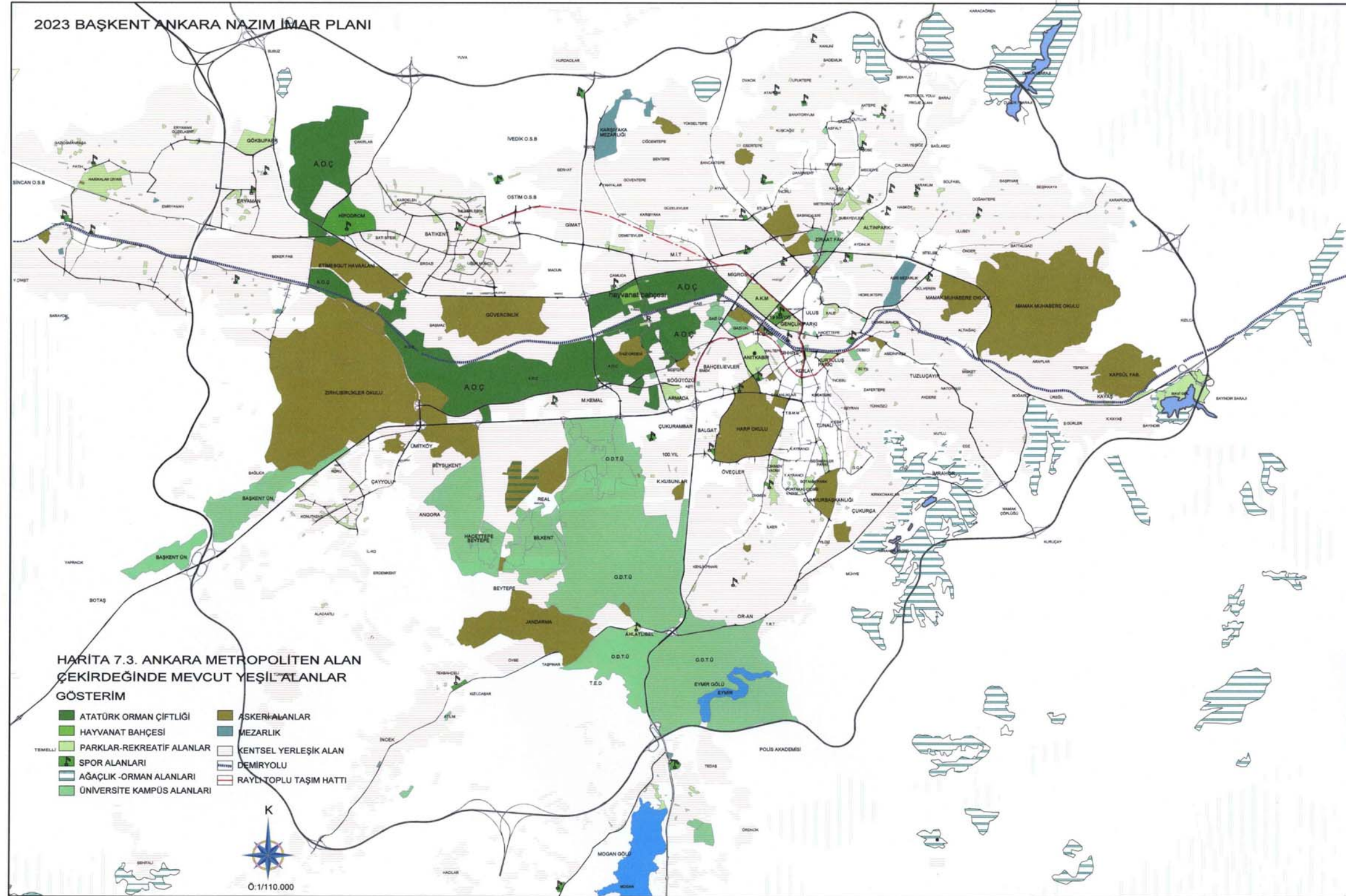


Figure A.5. Map showing the distribution of Green Spaces in the Ankara Metropolitan Core Area (Source: Development and City Planning Department of Greater Municipality of Ankara, 2006; 394)

## APPENDIX B: SPECIES LIST FOR FLORA of METU

(Source: ODTÜ Doğa Topluluğu, 1996; 121)

|                                 |                                 |
|---------------------------------|---------------------------------|
| <i>Acantus hirsutus</i>         | <i>Astragalus christianus</i>   |
| <i>Acer negundo</i>             | <i>Astragalus lydius</i>        |
| <i>Acer platanoides</i>         | <i>Astragalus strictifolius</i> |
| <i>Achillea nobilis</i>         | <i>Ballota nigra</i>            |
| <i>Acroptilon repens</i>        | <i>Bellevalia clusina</i>       |
| <i>Adonis aestivalis</i>        | <i>Bellis perennis</i>          |
| <i>Adonis flammea</i>           | <i>Brassica nigra</i>           |
| <i>Aesculus hippocastaneum</i>  | <i>Bromus inermis</i>           |
| <i>Agrimonia eupatoria</i>      | <i>Bupleurum rotundifolium</i>  |
| <i>Ajuga chamaepitys</i>        |                                 |
| <i>Ajuga salicifolia</i>        | <i>Capsella bursa-pastoris</i>  |
| <i>Alcea pallida</i>            | <i>Cardaria draba</i>           |
| <i>Alhagi pseudoalhagi</i>      | <i>Carduus nutans</i>           |
| <i>Alnus glutinosa</i>          | <i>Carlina corymbosa</i>        |
| <i>Althaea cannabina</i>        | <i>Cedrus libani</i>            |
| <i>Alyssum murale</i>           | <i>Centaurea carduiformis</i>   |
| <i>Alyssum strigosum</i>        | <i>Centaurea drabifolia</i>     |
| <i>Amarantus deflexus</i>       | <i>Centaurea iberica</i>        |
| <i>Amygdalus orientalis</i>     | <i>Centaurea kotschy</i>        |
| <i>Anagallis arvensis</i>       | <i>Centaurea pichleri</i>       |
| <i>Anchusa azurea</i>           | <i>Centaurea solstitialis</i>   |
| <i>Anchusa arvensis</i>         | <i>Centaurea triumfettii</i>    |
| <i>Anthemis crecetica</i>       | <i>Centaurea urvillei</i>       |
| <i>Anthemis tinctoria</i>       | <i>Centaureum erythraea</i>     |
| <i>Arctium minus</i>            | <i>Cerintho minor</i>           |
| <i>Aristolochia maurorum</i>    | <i>Cercis siliquastrum</i>      |
| <i>Arnebia decumbens</i>        | <i>Chenopodium album</i>        |
| <i>Astragalus angustifolius</i> | <i>Chenopodium foliosum</i>     |
| <i>Astragalus campylosema</i>   | <i>Chondrilla juncea</i>        |

|                                      |                                |
|--------------------------------------|--------------------------------|
| <i>Cichorium intybus</i>             | <i>Echinops ritro</i>          |
| <i>Cirsium arvense ssp. Arvense</i>  | <i>Echium italicum</i>         |
| <i>Cirsium arvense ssp. Vestitum</i> | <i>Eleagnus angustifolia</i>   |
| <i>Cnicus benedictus</i>             | <i>Epilobium hirsutum</i>      |
| <i>Colutea cilicica</i>              | <i>Erodium ciconium</i>        |
| <i>Conium maculatum</i>              | <i>Eryngium campestre</i>      |
| <i>Consolida orientalis</i>          | <i>Erysimum crassipes</i>      |
| <i>Consolida regalis</i>             | <i>Euphorbia aleppica</i>      |
| <i>Convolvulus arvensis</i>          | <i>Euphorbia rigida</i>        |
| <i>Convolvulus elegantissimus</i>    |                                |
| <i>Convolvulus galaticus</i>         | <i>Falcaria vulgaris</i>       |
| <i>Convolvulus holosericeus</i>      | <i>Foeniculum vulgare</i>      |
| <i>Coronilla varia</i>               | <i>Fraxinus excelsior</i>      |
| <i>Conyza canadensis</i>             | <i>Fumaria officinalis</i>     |
| <i>Crambe tataria</i>                | <i>Fumaria parviflora</i>      |
| <i>Crataegus monogyna</i>            |                                |
| <i>Crepis foetida</i>                | <i>Gagea villosa</i>           |
| <i>Crocus chrysanthus</i>            | <i>Galega officinalis</i>      |
| <i>Crocus olivieri</i>               | <i>Galium aparine</i>          |
| <i>Cruciata auriculata</i>           | <i>Galium cruciata</i>         |
| <i>Crupina crupinastrum</i>          | <i>Galium verum</i>            |
| <i>Cynoglossum officinale</i>        | <i>Genista aucheri</i>         |
| <i>Cynodon dactylon</i>              | <i>Genista sessilifolia</i>    |
| <i>Cynanchum acutum</i>              | <i>Geranium dissectum</i>      |
|                                      | <i>Gladiolus anatolicus</i>    |
| <i>Dactylis glomerata</i>            | <i>Glaucium corniculatum</i>   |
| <i>Daucus carota</i>                 | <i>Glaucium grandiflorum</i>   |
| <i>Diploaxis tenuifolia</i>          | <i>Glaucium flavum</i>         |
| <i>Dipsacus laciniatus</i>           | <i>Globularia trichosantha</i> |
|                                      | <i>Glycyrrhiza glabra</i>      |
| <i>Echinophora tenuifolia</i>        | <i>Gypsophila perfoliate</i>   |
| <i>Echinophora tournefortii</i>      |                                |

|                                |                                  |
|--------------------------------|----------------------------------|
| <i>Hedysarium varium</i>       | <i>Mahonia aquifolium</i>        |
| <i>Heliotropium ellipticum</i> | <i>Malus sylvestris</i>          |
| <i>Holosteum umbellatum</i>    | <i>Malva neglecta</i>            |
| <i>Hyoscyamus niger</i>        | <i>Malva sylvestris</i>          |
| <i>Hyoscyamus reticulatus</i>  | <i>Marrubium parviflorum</i>     |
| <i>Hypocoum procumbens</i>     | <i>Medicago lupulina</i>         |
| <i>Hypericum perforatum</i>    | <i>Medicago varia</i>            |
|                                | <i>Melilotus alba</i>            |
| <i>Isatis glauca</i>           | <i>Melilotus indica</i>          |
|                                | <i>Mentha longifolia</i>         |
| <i>Jasminum fruticans</i>      | <i>Mollucella laevis</i>         |
| <i>Juglans regia</i>           | <i>Moltkia aurea</i>             |
| <i>Juncus inflexus</i>         | <i>Moltkia coerulea</i>          |
| <i>Juniperus oxycedrus</i>     |                                  |
| <i>Jurinea pontica</i>         | <i>Nigella segetalis</i>         |
|                                |                                  |
| <i>Kickxia spuria</i>          | <i>Odontites verna</i>           |
| <i>Kochia scoparia</i>         | <i>Onopordum turcicum</i>        |
|                                | <i>Onobrychis hypergyrea</i>     |
| <i>Lactuca serriola</i>        | <i>Onobrychis viciifolia</i>     |
| <i>Lathyrus cicera</i>         | <i>Ononis spinosa</i>            |
| <i>Lepidium latifolium</i>     | <i>Onosma aucheranum</i>         |
| <i>Linaria genistofolia</i>    | <i>Ornithogalum oligophyllum</i> |
| <i>Linaria iconica</i>         |                                  |
| <i>Linum flavum</i>            | <i>Papaver macrostomum</i>       |
| <i>Linum hirsutum</i>          | <i>Papaver rhoeas</i>            |
| <i>Linum nodiflorum</i>        | <i>Peucedanum palimboides</i>    |
| <i>Lolium rigidum</i>          | <i>Phlomis pungens</i>           |
| <i>Lonicera periclymenum</i>   | <i>Phragmites australis</i>      |
| <i>Lotus corniculatus</i>      | <i>Picris strigosa</i>           |
| <i>Lycopus europaeus</i>       | <i>Pilosella hoppeana</i>        |
|                                | <i>Pinus nigra</i>               |

|                                |  |
|--------------------------------|--|
| <i>Pinus sylvestris</i>        | <i>Salvia argentea</i>                 |
| <i>Plantago lanceolata</i>     | <i>Salvia candidissima</i>             |
| <i>Plantago major</i>          | <i>Salvia sclarea</i>                  |
| <i>Planatus orientalis</i>     | <i>Salvia suffruticosa</i>             |
| <i>Plumbago europaea</i>       | <i>Salvia verticillata</i>             |
| <i>Polygala supina</i>         | <i>Salvia virgata</i>                  |
| <i>Polygonum arenastrum</i>    | <i>Sanguisorba minor</i>               |
| <i>Polygonum lapathifolium</i> | <i>Scabiosa micrantha</i>              |
| <i>Populus alba</i>            | <i>Scabiosa rotata</i>                 |
| <i>Populus nigra</i>           | <i>Scandix pecten-veneris</i>          |
| <i>Portulaca oleracea</i>      | <i>Scariola vilenea</i>                |
| <i>Potentilla recta</i>        | <i>Scolymus hispanicus</i>             |
| <i>Potentilla reptans</i>      | <i>Scorzonia cana var. jacquiniana</i> |
| <i>Prunella vulgaris</i>       | <i>Scorzonia cana var. radicata</i>    |
| <i>Prunus mahaleb</i>          | <i>Scrophularia canina</i>             |
| <i>Pulicaria dysenterica</i>   | <i>Scrophularia scopoli</i>            |
| <i>Pyrus eleagrifolia</i>      | <i>Senecio vernalis</i>                |
|                                | <i>Senecio vulgaris</i>                |
| <i>Quercus cerris</i>          | <i>Seteria viridis</i>                 |
|                                | <i>Silene vulgaris</i>                 |
| <i>Ranunculus brutius</i>      | <i>Sinapis arvensis</i>                |
| <i>Ranunculus neapolitanus</i> | <i>Sonchus asper</i>                   |
| <i>Reseda lutea</i>            | <i>Suaeda eltonica</i>                 |
| <i>Rosa canina</i>             | <i>Stachys annua</i>                   |
| <i>Rosa hemisphaerica</i>      | <i>Stachys cretica</i>                 |
| <i>Rubia tinctorium</i>        |  |
| <i>Rubus sanctus</i>           | <i>Taraxacum hybernum</i>              |
| <i>Rumex patientia</i>         | <i>Taraxacum officinale</i>            |
|                                | <i>Taraxacum serotinum</i>             |
| <i>Salix alba</i>              | <i>Taxus baccata</i>                   |
| <i>Salix babylonica</i>        | <i>Teucrium chamaedrys ssp.</i>        |
| <i>Salvia aethiopsis</i>       | <i>chamaedrys</i>                      |



*Teucrium chamaedrys ssp. sypirensense*

*Teucrium parviflorum*

*Teucrium polium*

*Tragopogon dubius*

*Tragopogon longirostris*

*Tribulus terrestris*

*Trifolium pratense*

*Trifolium repens*

*Trifolium retusum*

*Tripleurospermum seavense*

*Typha latifolia*

*Valeriana dioscoridis*

*Verbana officinalis*

*Veronica anagallis-aquatica*

*Veronica pectinata*

*Veronica polita*

*Vicia cracca*

*Vinca herbaceae*

*Viscum album ssp. Austricum*

*Wiedemannia orientalis*

*Xanthium spinosum*

*Xanthium strumarium*

*Xerathemum annuum*

## APPENDIX C: SPECIES LIST FOR FAUNA of METU

(Source: ODTÜ Doğa Topluluğu, 1996; 108)

### **MAMALIA (Mammals)**

*Microtus spp.*

#### **Insectivora (Insectivore):**

*Apodemus spp.*

*Erinaceus concolor*

*Mus spp.*

*Crocidura spp.*

*Rattus rattus*

#### **Chiroptera (Bats):**

*Rhinolophus spp.*

*Eptesicus serotinus*

*Myotis spp. Pipistrellus spp.*

*inopterus schreibersi*

### **REPTILIA (Reptiles):**

*Testudinata (Chelonian):*

*Mauremys caspica*

*Testudo graeca*

#### **Carnivora (Carnivore):**

*Canis familiaris*

*Canis lupus*

*Vulpes vulpes*

*Felis catus*

*Meles meles*

*Mustela nivalis*

*Vormela peregusna*

#### **Squamata (Scaled Reptiles):**

*Lacerta trilineata*

*Ophisops elegans*

*Mabuya vittata*

*Coluber caspius*

*Coluber schimdti*

*Elaphe quatorlineata*

*Natrix natrix*

#### **Lagamorpha (Rabbits):**

*Lepus europaeus*

### **AMPHIBIA:**

#### **Anura (Frogs and Toads):**

*Bufo viridis*

*Rana ridibunda*

#### **Rodentia (Rodents):**

*Spermophilus xanthaphyrmnus*

*Nannospalax leucodon*

*Cricetulus migratorius*

*Mesocricetus brandti*

*Meriones tristami*

### **AVES (Birds):**

*Tachybaptus ruficollis*

*Podiceps cristatus*  
*Podiceps nigricollis*  
*Phalacrocorax carbo*  
*Phalacrocorax pygmeus*  
*Botaurus stellaris*  
*Ixobrychus minutus*  
*Nycticorax nycticorax*  
*Ardeola ralloides*  
*Egretta garzetta*  
*Egretta alba*  
*Ardea cinerea*  
*Ardea purpurea*  
*Ciconia nigra*  
*Ciconia ciconia*  
*Cygnus olor*  
*Anser anser*  
*Tadorna ferruginea*  
*Anas querquedula*  
*Anas crecca*  
*Anas platyrhynchos*  
*Anas clypeata*  
*Aythya ferina*  
*Pernis apivorus*  
*Milvus migrans*  
*Neophron perenopterus*  
*Aegyptius monachus*  
*Circaetus gallicus*  
*Circus aeruginosus*  
*Circus cyaneus*  
*Circus pygargus*  
*Accipiter gentilis*  
*Accipiter nisus*

*Buteo buteo*  
*Buteo rufinus*  
*Buteo lagopus*  
*Aquila pomarina*  
*Aquila heliaca*  
*Aquila chrysaetos*  
*Hieraaetus pennatus*  
*Pandion haliaetus*  
*Falco naumanni*  
*Falco tinnunculus*  
*Falco columbarius*  
*Falco vespertinus*  
*Falco eleonora*  
*Falco peregrinus*  
*Alectoris chukar*  
*Perdix perdix*  
*Coturnix coturnix*  
*Rallus aquaticus*  
*Porzana pusilla*  
*Gallinula chloropus*  
*Fulica atra*  
*Grus grus*  
*Burhinus oedicephalus*  
*Tringa erythropus*  
*Tringa ochropus*  
*Tringa glareola*  
*Actitis hypoleucos*  
*Gallinago gallinago*  
*Scolopax rusticola*  
*Larus ridibundus*  
*Gelochelidon nilotica*  
*Sterna hirundo*

|                                  |                                |
|----------------------------------|--------------------------------|
| <i>Chlidonias leucopterus</i>    | <i>Hirundo rustica</i>         |
| <i>Columba livia</i>             | <i>Delichon urbica</i>         |
| <i>Columba oenas</i>             | <i>Anthus trivialis</i>        |
| <i>Columba palumbus</i>          | <i>Anthus spinoletta</i>       |
| <i>Streptopelia decaocto</i>     | <i>Anthus pratensis</i>        |
| <i>Streptopelia turtur</i>       | <i>Anthus cervinus</i>         |
| <i>Clamator glandarius</i>       | <i>Motacilla flava</i>         |
| <i>Cuculus canorus</i>           | <i>Motacilla cinerea</i>       |
| <i>Alcedo atthis</i>             | <i>Motacilla alba</i>          |
| <i>Otus scops</i>                | <i>Troglodytes troglodytes</i> |
| <i>Bubo bubo</i>                 | <i>Prunella modularis</i>      |
| <i>Athene noctua</i>             | <i>Erithacus rubecula</i>      |
| <i>Asio otus</i>                 | <i>Luscinia megarhynchos</i>   |
| <i>Asio flammeus</i>             | <i>Irania gutturalis</i>       |
| <i>Caprimulgus europaeus</i>     | <i>Phoenicurus ochruros</i>    |
| <i>Apus apus</i>                 | <i>Phoenicurus phoenicurus</i> |
| <i>Merpos apiaster</i>           | <i>Saxicola rubetra</i>        |
| <i>Coracias garrulus</i>         | <i>Saxicola torquata</i>       |
| <i>Upupa epops</i>               | <i>Oenanthe isabellina</i>     |
| <i>Psittacula krameri</i>        | <i>Oenanthe oenanthe</i>       |
| <i>Jynx torquilla</i>            | <i>Oenanthe pleschanka</i>     |
| <i>Picus viridis</i>             | <i>Oenanthe hispanica</i>      |
| <i>Dendrocopos minor</i>         | <i>Oenanthe finschii</i>       |
| <i>Dendrocopos syriacus</i>      | <i>Turdus torquatus</i>        |
| <i>Melanocorypha calandra</i>    | <i>Turdus merula</i>           |
| <i>Melanocorypha bimaculata</i>  | <i>Turdus pilaris</i>          |
| <i>Calandrella brachydactyla</i> | <i>Turdus philomelos</i>       |
| <i>Galerida cristata</i>         | <i>Turdus iliacus</i>          |
| <i>Lullula arborea</i>           | <i>Turdus viscivorus</i>       |
| <i>Alauda arvensis</i>           | <i>Cettia cetti</i>            |
| <i>Eremophila alpestris</i>      | <i>Acrocephalus palustris</i>  |
| <i>Riparia riparia</i>           | <i>Acrocephalus scirpaceus</i> |

|                                  |                                      |
|----------------------------------|--------------------------------------|
| <i>Acrocephalus arundinaceus</i> | <i>Pica pica</i>                     |
| <i>Hippolais pallida</i>         | <i>Corvus monedula</i>               |
| <i>Hippolais icterina</i>        | <i>Corvus frugilegus</i>             |
| <i>Sylvia melanocephala</i>      | <i>Corvus corone</i>                 |
| <i>Sylvia hortensis</i>          | <i>Sturnus vulgaris</i>              |
| <i>Sylvia curruca</i>            | <i>Sturnus roseus</i>                |
| <i>Sylvia communis</i>           | <i>Passer domesticus</i>             |
| <i>Sylvia atricapilla</i>        | <i>Passer hispaniolanses</i>         |
| <i>Sylvia nisoria</i>            | <i>Passer montanus</i>               |
| <i>Phylloscopus sibilatrix</i>   | <i>Petronia petronia</i>             |
| <i>Phylloscopus collybita</i>    | <i>Fringilla coelebs</i>             |
| <i>Phylloscopus trochilus</i>    | <i>Fringilla montifringilla</i>      |
| <i>Regulus regulus</i>           | <i>Serinus pusillus</i>              |
| <i>Regulus ignicapillus</i>      | <i>Serinus serinus</i>               |
| <i>Muscicapa striata</i>         | <i>Carduelis chloris</i>             |
| <i>Ficedula parva</i>            | <i>Carduelis carduelis</i>           |
| <i>Ficedula albicollis</i>       | <i>Carduelis spinus</i>              |
| <i>Panurus biarmicus</i>         | <i>Carduelis cannabina</i>           |
| <i>Aegithalos caudatus</i>       | <i>Loxia curvirostra</i>             |
| <i>Parus ater</i>                | <i>Pyrrhula pyrrhula</i>             |
| <i>Parus caeruleus</i>           | <i>Coccothraustes coccothraustes</i> |
| <i>Parus major</i>               | <i>Emberiza citrinella</i>           |
| <i>Sitta europea</i>             | <i>Emberiza leucocephala</i>         |
| <i>Sitta neumeyer</i>            | <i>Emberiza cia</i>                  |
| <i>Certhia brachydactyla</i>     | <i>Emberiza hortulana</i>            |
| <i>Remiz pendulinus</i>          | <i>Emberiza schoeniclus</i>          |
| <i>Oriolus oriolus</i>           | <i>Emberiza melanocephala</i>        |
| <i>Lanius collurio</i>           | <i>Miliaria calandra</i>             |
| <i>Lanius excubitor</i>          |                                      |
| <i>Lanius minor</i>              |                                      |
| <i>Lanius nubicus</i>            |                                      |
| <i>Garrulus glandarius</i>       |                                      |



