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Faculty of Engineering and Information  
Technology  
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Graduation Project Program  
National Park in Palestine  
(Tubas-Aqabaa National park)

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2015/2016

## الاهداء

الى رمز العطاء وثغره الباسم وحنانه الدائم والدي الغالية اهداء اول  
الى الشامخ والمعطاء والمغدق بجهده علينا .من يحملنا على اكتافه والدي العزيز اهداء ثاني  
الى الوقت الذي داهمني كثير وزاحمني همتي اهداء ثالث  
الى الذين لم تسمح لهم الظروف واحبوا ان يكونوا يوما في مكاني اسمحو لي ان احمله عنكم واهديكم عملي اهداء رابع  
الى وطني واهلي واصدقائي واحبتي اجمعين اهداء خامس

ايات خلية

## *Appreciation and acknowledgements*

*All praise be to God who helped and Guided me to achieve this humble work, hopping that it will have an efficient roll to our people, our community as well as our religion.*

*I would be grateful for all those who helped me to make this work come to life, and I would also like to be grateful for all those who provided me with guidance and information especially my professors in the urban planning department.*

## Table of Contents

الإهداء.....	Error! Bookmark not defined.
<i>Appreciation and acknowledgements</i> .....	3
Table of Contents .....	4
List of pictures.....	5
List of maps .....	6
List of tables and charts .....	7
Chapter 1: general introduction .....	8
1.1 Abstract .....	9
1.2 Background.....	10
1.3 motivations.....	10
1.4 importance of the project .....	10
Chapter 2: What is National park?.....	11
2.1 What is National Park? .....	12
2.2 Benefit and objective of national parks .....	13
2.3 Palestinian Reserves and privacy of the Palestinian situation.....	14
2.3.1 The reality of biodiversity and protected areas in Palestine .....	14
2.3.2 Nature reserves in the West Bank .....	14
2.3.3 Oslo agreement and the division of land in the West Bank.....	15
2.3.4 Case study (bulldozing forest Abu Ghneim in Bethlehem to create a colony of Har Homa) .....	20
2.3.5The importance of having a national park and its role in the protection of Palestinian land.....	20
2.4 case studies .....	21
2.4.1 Olympic National Park –America –Washington .....	21
2.4.2 Asir National park- Saudi Arabia-Abha .....	23
Chapter 3: program to design A national park in Palestine (Tubas national park) .....	26
3.1 Introduction.....	27
3.2 The main outcomes to establish national park in Palestine .....	27
3.3 The workflow of Submitting a proposal for a national park in Palestine (Tubas National Park) .....	28
3.4 General objective .....	29
3.5 Vision .....	31



3.6 Site selection .....	32
3.7 Site analysis .....	41
3.8 The design stage.....	54
3.9 impact assessment .....	73

## List of pictures

Picture 1: Abo Ghneim Mountain after and before the construction of the Israeli's colony.....	<b>Error! Bookmark not defined.</b>
Picture 2: The site of the Olympic national park in Washington State	<b>Error! Bookmark not defined.</b>
Picture 3: Nearby and important sites in Olympic national park ...	<b>Error! Bookmark not defined.</b>
Picture 4: The wildlife in Olympic National park .....	<b>Error! Bookmark not defined.</b>
Picture 5: The site of Asir National Park in Saudi Arabia .	<b>Error! Bookmark not defined.</b>
Picture 6: The wildlife in Asir National Park .....	<b>Error! Bookmark not defined.</b>
Picture7: The location of the first alternative.....	<b>Error! Bookmark not defined.</b>
Picture8: The forests in the area.....	<b>Error! Bookmark not defined.</b>
Picture9: The location of the second alternative .....	<b>Error! Bookmark not defined.</b>
Picture10: Site selection process .....	<b>Error! Bookmark not defined.</b>
Picture11: The forests in the area .....	<b>Error! Bookmark not defined.</b>
Picture12: Local situation (3d) .....	<b>Error! Bookmark not defined.</b>
Picture13: Type of soil .....	<b>Error! Bookmark not defined.</b>
Picture14: Climate conditions.....	<b>Error! Bookmark not defined.</b>
Picture 15: Tubas Turkish hospital .....	<b>Error! Bookmark not defined.</b>
Picture16: Views from different sides .....	<b>Error! Bookmark not defined.</b>
Picture17: Several natural views .....	<b>Error! Bookmark not defined.</b>
Picture18: zones of protection lands .....	<b>Error! Bookmark not defined.</b>
Picture19: zones of recreation.....	<b>Error! Bookmark not defined.</b>
Picture20: zones of Services and management.....	<b>Error! Bookmark not defined.</b>
Picture21: zoo zone.....	<b>Error! Bookmark not defined.</b>
Picture22: camping zone .....	<b>Error! Bookmark not defined.</b>

Picture23: zone of barbeque area .....	<b>Error! Bookmark not defined.</b>
Picture24: Botanical Garden zone .....	<b>Error! Bookmark not defined.</b>
Picture25: hiking area zone .....	<b>Error! Bookmark not defined.</b>
Picture26: parkings areas.....	<b>Error! Bookmark not defined.</b>
Picture27: rests distribution .....	<b>Error! Bookmark not defined.</b>
Picture28: examples of rests that can be developed in the park ...	<b>Error! Bookmark not defined.</b>
picture29: the main Street and entrances.....	<b>Error! Bookmark not defined.</b>
Picture 30: concept plan of the zoo .....	<b>Error! Bookmark not defined.</b>
Picture 31: initial plan (hardscape) .....	<b>Error! Bookmark not defined.</b>
Picture 32: zoom in some areas and facilities) .....	<b>Error! Bookmark not defined.</b>

### **List of maps**

Map 1: Areas according to Oslo Agreement.....	<b>Error! Bookmark not defined.</b>
Map 2: The current situation for land in the West Bank .	<b>Error! Bookmark not defined.</b>
Map 3: The agricultural value of land .....	<b>Error! Bookmark not defined.</b>
Map4: The Allocation in a bio diverse area .....	<b>Error! Bookmark not defined.</b>
Map5: Geopolitical factors .....	<b>Error! Bookmark not defined.</b>
Map 6: Jenin master plan.....	<b>Error! Bookmark not defined.</b>
Map7:Tubas and Aqqaba master plan.....	<b>Error! Bookmark not defined.</b>
Map 8: The slope in both sites.....	<b>Error! Bookmark not defined.</b>
Map 9: The boundary of the park.....	<b>Error! Bookmark not defined.</b>
Map 10:Regional situation.....	<b>Error! Bookmark not defined.</b>
Map11: Local situation.....	<b>Error! Bookmark not defined.</b>
Map12: Topography.....	<b>Error! Bookmark not defined.</b>
Map13: Circulation.....	<b>Error! Bookmark not defined.</b>
Map 14: The average temperature.....	<b>Error! Bookmark not defined.</b>
Map15: Agricultural value of land .....	<b>Error! Bookmark not defined.</b>
Map16: Vegetation type .....	<b>Error! Bookmark not defined.</b>
Map17: water analysis.....	<b>Error! Bookmark not defined.</b>

Map18: Facilities .....	Error! Bookmark not defined.
Map19: Land marks .....	Error! Bookmark not defined.
Map20: Positives and negative .....	Error! Bookmark not defined.
Map21: The first initial boundary .....	Error! Bookmark not defined.
Map22: The second initial boundary .....	Error! Bookmark not defined.
Map23: The final boundary .....	Error! Bookmark not defined.
Map24: The proposed road .....	Error! Bookmark not defined.
Map 25: the initial distribution of functions.....	Error! Bookmark not defined.
Map26: master plan national park (Tubas.....	Error! Bookmark not defined.
Map27: the location of the detailed plan .....	Error! Bookmark not defined.
Map28: final detailed plan (zoo .....	Error! Bookmark not defined.

## **List of tables and charts**

Table 1: Reserves in the West Bank.....	15
Table 2: Political division in the West Bank .....	16
Table 3: the existence of reserves according to the political division.....	16
Table 4: Goles and orientations .....	30
Chart 1: the ratio of functions distributed in the park .....	66

# Chapter 1: general introduction

## 1.1 Abstract

This report will explain the process to provide a proposal for a national park in the West Bank so that explains all general information before starting the real program for the park . It contains the definition of a national park, its objective importance, and the current Palestinian situation at the level of national parks and conservation, also the report explain case studies of Arab and international parks to facilitate the understanding of the nature of the national park and then provide methodology expected to be followed to establish a national park in Palestine in terms of information gathering and selection of the ground, analysis and design of land for the project and get the final output whether a master plan for the project or a strategic plan to implement the project or set of criteria for the selection of site for the project.

## 1.2 Background

The need for a parks Began since the existence of human when the ground was a region of promenade due to the small populations. After that, the green spaces and beautiful natural places that constitute places for hiking gradually disappearing with increasing numbers of people. With the emergence and collects of civilizations there has been more attention of the need for places for recreation and hiking then the spaces and allocated places for that has showed and appeared. This places has taken different shapes and spaces and different from civilization to another one and from one area to another so, associated with such places with the culture of the people and its history. By the time and congested cities green places and spaces for recreation become very small and the natural ecosystem breaks down in its balance also, multiple strains of plants and animals began with extinction, and here the need for a natural reserves to protect biodiversity areas appeared, which in turn keeps the ecological balance and constitute areas for hiking and recreation and enjoy nature emerged then, the terms such as national parks, environmental protection and preservation began to appear. so, what is the national park? What are its elements and its benefits? Is there a need or importance to the presence of this kind of parks in Palestine?

## 1.3 motivations

- Since the land is a unique resource
- Since the human is the most important resource
- Since the conflict on the Palestinian land is long , sensitive and we must protect it

## 1.4 importance of the project

- protection of the Palestinian land from Israeli confiscation and attacks
- improve the Palestinian economic
- conserve the valuable land from neglect and expansion of urbanism
- social, psychological and health aspects to be provided by the park for visitors and citizens

## Chapter 2: What is National park?

## 2.1 What is National Park?

There are different definitions of the term "National Park" according to different views such as:

The International Union for Conservation of Nature (IUCN), and its World Commission on Protected Areas, has defined "National Park" as protected areas or conservation areas are locations which receive protection because of their recognized natural, ecological and/or cultural values. There are several kinds of protected areas, which vary by level of protection depending on the enabling laws of each country or the regulations of the international organizations involved. The term "protected area" also includes Marine Protected Areas, the boundaries of which will include some area of ocean, and Trans boundary Protected Areas that overlap multiple countries which remove the borders inside the area for conservation and economic purposes.

Office of environment and heritage defined "National parks are large areas of public land set aside for native plants, animals and the places in which they live. National parks protect places of natural beauty. They also protect places important to Aboriginal people and places that show how people lived in the past".

The system of National Parks in the Netherlands defined National Parks are areas of exceptional or outstanding natural value. A national park must have an area of at least one thousand hectares. Policymakers treat the national parks as a single unit. ( Cees Veerman)

In general National park is a nature reserve is managed and designed by specialized government agencies to preserve the bio-diversity, wild animals and plants found in such areas, these areas vary in size from one country to another, but about mostly cover large area.

National Parks invariably have beautiful landscapes which harbor a wealth of rare or unusual plants and animals. The system of national parks preserves a wide range of landscapes characteristic. ( Cees Veerman)

Outdoor recreation is encouraged in the National Parks. There are extensive networks of cycling and walking trails, canoeing routes, wildlife observation huts and vantage points. There are benches to rest on, hotels for rest, tents and areas for camping, restaurants, signposts, recreational maps and information panels. Most parks also have a wheelchair trail. People are free to explore a National Park on their own, but they may also choose to participate in a guided excursion. ( Cees Veerman)

Most parks have one or more visitor information centers which aim to inform and amuse both young and old, raising an appreciation of nature along the way. The attractive presentations focus on the parks' natural values, nature management, man's influence on nature and the importance of nature conservation. Visitor centers also organize courses,



activities and special projects for visiting schools or people who live in or near the park. The visitor center is also a starting point for walks and guided excursions.

Each national park has its own internet site and most also publish a regular park bulletin which includes a schedule of activities. Brochures, folders and maps are also available.

## 2.2 Benefit and objective of national parks

The main aim from creation National Park is to protect the nature and then keep the ecological system alive and in balance. We can listed the importance of national parks as following

- Protection and development of nature and the landscape;
- Outdoor recreation and enjoyment, national parks were also created for the benefit and enjoyment of the public. The different groups involved in the running of the National Parks work together to provide a variety of outdoor recreation and education activities. Activities are allowed provided they do not cause undue disturbance to nature. ( Cees Veerman)
- Education and extension, education and extension are important preconditions for the quality of a natural experience, and also generates support for and involvement in the National Parks.( Cees Veerman)
- Repositories of geological and biological diversity and knowledge
- National parks function as cultural icons of heritage and identity
- By coming to national parks, many seek to transcend the superficial distractions that clutter daily life and experience something of deeper, enduring value. Indeed, these sanctuaries of unspoiled nature represent places of spiritual renewal where we can return to the source of our being and recover the freshness of a new beginning.( Jonathan Margolis,2008)
- Support the national economy through the encouragement of tourism and recreation.
- Protect the Earth from some phenomena such as urban sprawl, drought, soil erosion, deforestation and extinction of some plants and animals.

## 2.3 Palestinian Reserves and privacy of the Palestinian situation

### 2.3.1 The reality of biodiversity and protected areas in Palestine (عبيد صفر، محمد) (2001، غنائيم، فيوليت قمصية)

Biodiversity of organisms variation in different ecosystems, whether land, sea and air systems where these constitute the living resources and objects that are integrated to achieve ecological balance.

Environmental regulations in Palestine is characterized by heterogeneous and genetic diversity of various organisms due to the site Palestine geographical West Asia as part of the Fertile Crescent, which form over time a crossroads of plant and animal, African and European objects, which led to the emergence of numerous varieties of breeds and types of vital environmental and nations in Palestine.

When we talk about biodiversity in Palestine should be talking about:

- Wild plant life
- Animal Wildlife
- Soil diversity

There are a great variety of different types of organisms previously mentioned. The difference of this organisms and presence in different areas of the West Bank formed vital diversity areas and nature reserves must be maintained and managed well to achieve ecological balance and keep the diversity which exists for the longest possible period of time.

### 2.3.2 Nature reserves in the West Bank (عبيد صفر، محمد غنائيم، فيوليت قمصية) (2001)

The number of reserves in the West Bank, 48 nature reserves with an estimated area of 330 700 acres, a rate of 5.6% of the total area of the West Bank, and is worth mentioning that these reserves announced by the Israeli authorities and the distribution of those reserves in the eastern slopes and the Jordan Valley.

As for the Palestinian authorities are not to include the name of nature reserves in its plans except announced by the occupation authorities, but has identified areas characterized by sensitivity and varying agricultural value (National spatial plan) in order to regulate urbanization and determine land use in areas of the West Bank.

The following table illustrates some of the reserves are distributed in different governorates of the West Bank

The Governorate	The natural reserve	The area that has been delivered to the Palestinian side- dunum
Jenin	Em At-toot reserve and forest	320
	Fahma	400
	Ceres reserve and forest	1118
	Shobash	5000
	Tayaseer reserve and forest	1200
Tubas	Tamoon Mountain	4300
Nablus	Al-kabeer Mountain	9500
	A-shaykh Zaied reserve and forest	52
	Za'atara	29
	A-shaykh at-taban	34
	Beer Heja	Un Known
Salfit	Az-zarqa' Valley	2700
	Balutet Tfuh	29
Ramallah	Shaykh al-qatrawneen	11
	Ain dara	44
	Ad-daleb Valley	800
	Daer Ammar reserve and forest	120
	Al-hashemi reserve and forest	200
Hebron	Al-kannob	28600

Table 1: Reserves in the West Bank

### 2.3.3 Oslo agreement and the division of land in the West Bank

The area of the West Bank approximately 5856 km<sup>2</sup> (of which the Dead Sea area) is surrounded by Israel from all sides except the east and separated recently by the apartheid wall held by the occupation authorities in 2001 in addition to the Israeli settlements inside the West Bank, the Palestinian Authority has divided the West Bank into 11 Governorate.

According to Oslo Agreement, the West Bank divided into three zones " a, b, c " where the rule of the Palestinian Authority full on the regions " A ", these areas include major cities and covers approximately 17.2 percent of the total area of the West Bank. As for the regions " B ", they include all the Palestinian villages and small cities ,these areas subjected administratively to the Palestinian Authority and security control of Israel, accounting for 17.7% of the total West Bank land and the rest has been ranked in the areas of " C ", which is subject to Israeli control of security and administratively. ( عبيد صفر، محمد غنایم، فيوليت ( قمصية 2001،

As mentioned earlier, the occupation authorities have classified reserves to 48 nature reserve with area of (330 700 dunum), 19 of them located in the areas of " a, b " and occupies about 163793 dunum, but Palestinian authorities took only 54 457 dunum and this

figure accounts for about 16.5%, and there are nine other nature reserves occupied an area of 17078 dunum in Hebron, Bethlehem and this is also subject to control by the Palestinian Ministry of Health. (عبيد صفر، محمد غنايم، فيوليت قمصية، 2001)

Political division	The ratio %
Area A	17.2
Area B	17.7
Area C	59
Proposed nature reserve	6

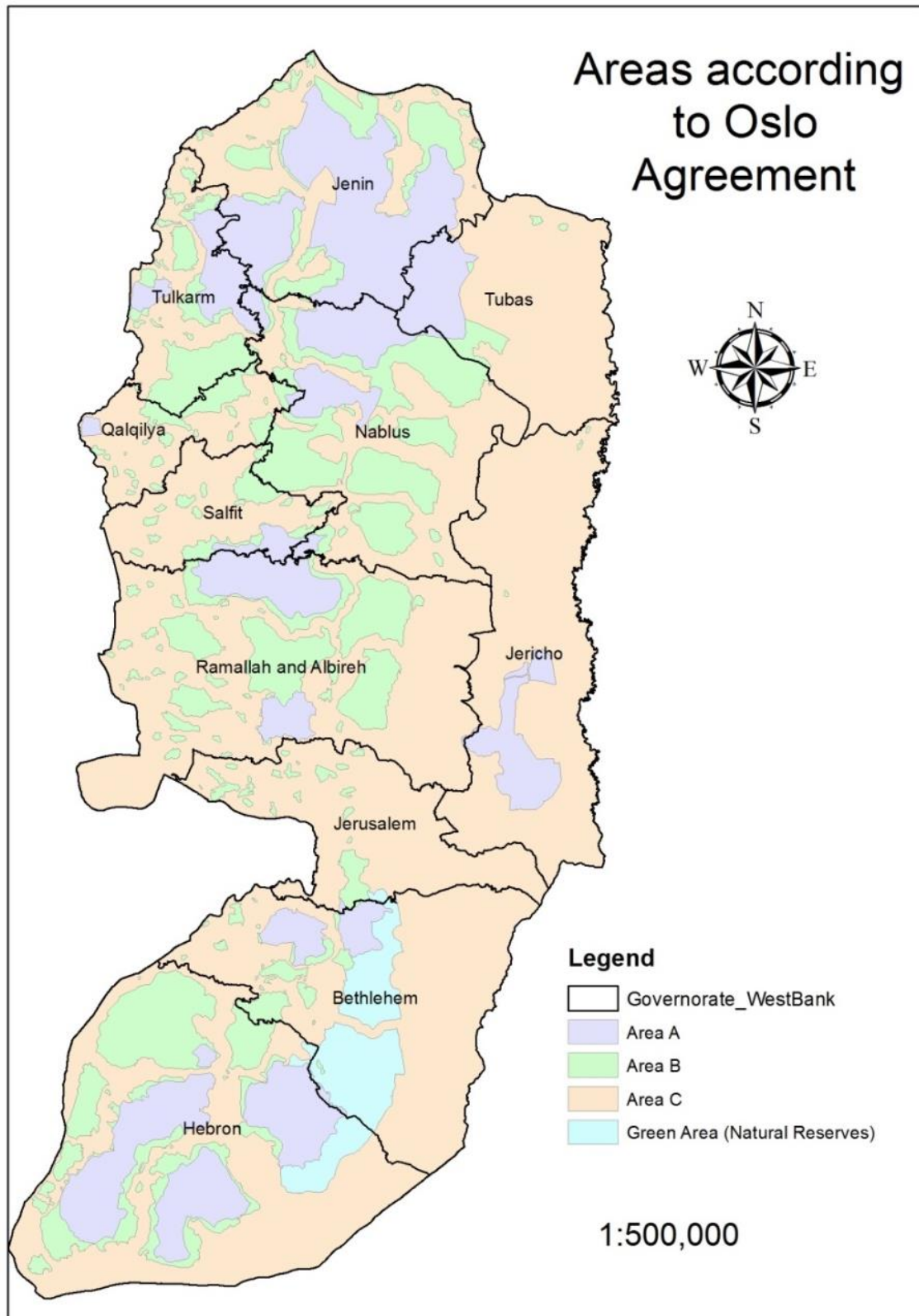
Table 2: Political division in the West Bank

The existence of reserves according to the political division	The ratio (%)
Reserves within area A and B	16.5
Reserves within area C	78.3
Other proposed reserves	5.2

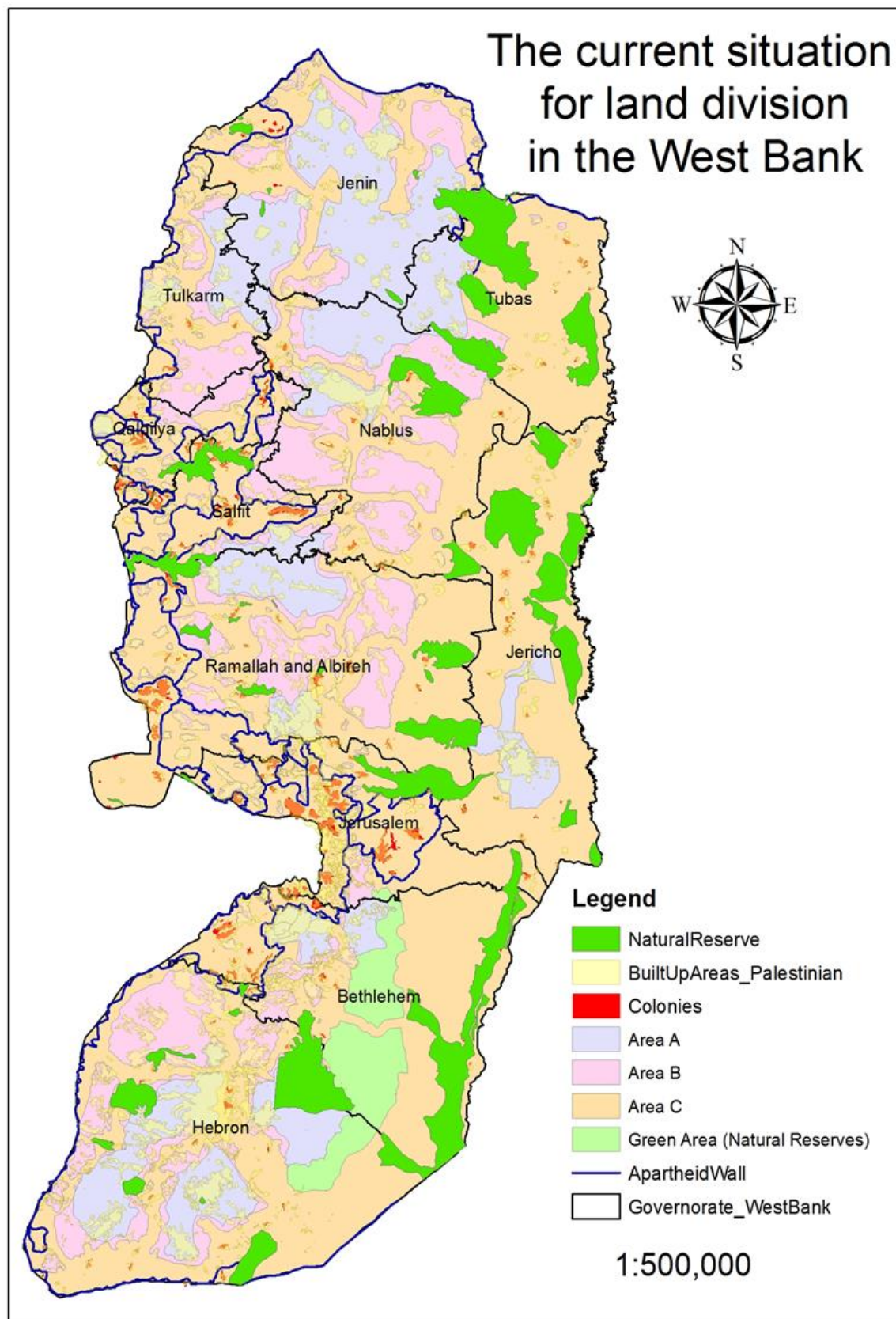
Table 3: the existence of reserves according to the political division

Note from the above table that there are 78.3% of the land classified as nature reserves are located within the territory of "c", these areas subject under the control of the occupation security and administratively and thus be subject to confiscation at any time, and if we take into account the Israeli-Palestinian conflict on the Palestinian Ground major cause requires protection. In this case the Palestinian land become a reserve must be protected, meaning that there is 59% of the total area of the West Bank at stake being the areas not under Palestinian sovereignty and contains approximately 185 colony. Then the reserved area is not only limited to the territory of biodiversity in the West Bank, but on land classified political zones "C".

This fact does not constitute alone a threat in front of the future of Palestinian land in general and nature reserves in particular, there is also a lack of people's awareness of the natural reserves and their importance in the West Bank and its role in the ecological balance moreover, other occupation practices pose a threat to the environment in the West Bank, both represented in the incision bypass roads or dumping colonies waste in the stream water and finally, cutting down trees in the forest and jungle areas, whether by Palestinians citizens or by the occupation.

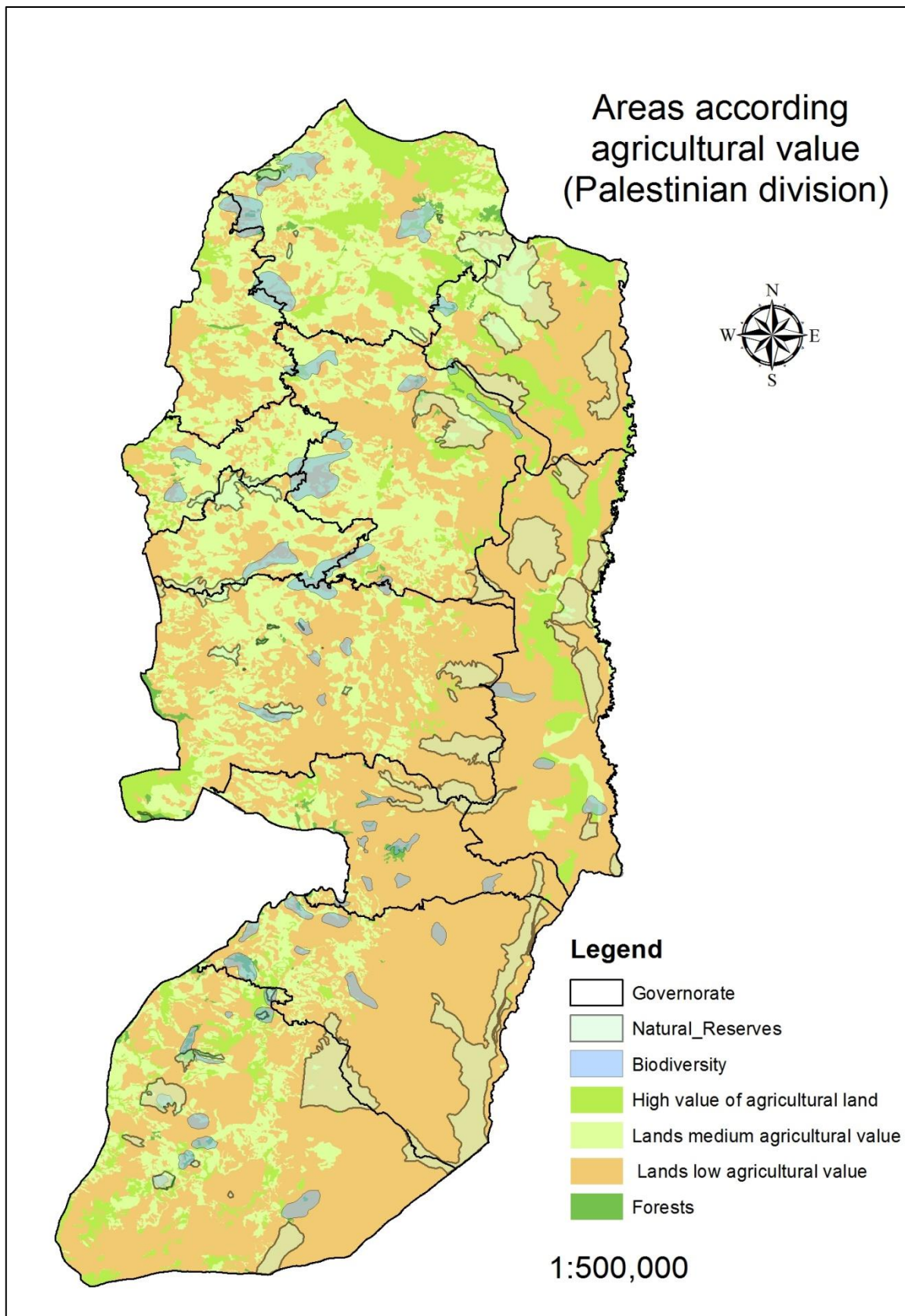


Map 1: Areas according to Oslo Agreement



Map 2: The current situation for land in the West Bank





Map 3: The agricultural value of land

#### 2.3.4 Case study (bulldozing forest Abu Ghneim in Bethlehem to create a colony of Har Homa) (عبير صفر، محمد غنايم، فيوليت قمصية 2001)

Abo Ghneim Mountain is located to the north of the city of Bethlehem 2 km far away and an area of about 2 square kilometers, it has been a forest contained more than 60 000 pine tree and many of the wild plants and animals. The occupation authorities selected it to be green area prevents the development and construction in ,but it confiscate it and sabotage the vital and natural value for the establishment of the colony of Har Homa despite the fact that ownership of the territory back to the citizens of the villages near Bethlehem.



Picture 1: Abo Ghneim Mountain after and before the construction of the Israeli's colony

#### 2.3.5 The importance of having a national park and its role in the protection of Palestinian land

the benefits and importance of having a national Palestinian park take several aspects and images the most important one the protection of the Palestinian land from Israeli confiscation and attacks on the Palestinian land by the occupation which seeks to control the maximum amount of Palestinian lands which have important sites and values, as well as the existence of a national park will improve the Palestinian economic situation as it will be would be a destination for internal and external tourism in Palestine, in addition the national park will conserve the valuable land from neglect and expansion of urbanism at them and do not take care of it, whether by the government or by the citizens as well as social, psychological and health aspects to be provided by the park for visitors and citizens since the Palestinian territories lack of such a kind of Parks.



## 2.4 case studies

### 2.4.1 Olympic National Park –America –Washington (Tim McNulty,1996)

In the far north western corner of Washington State the Olympic Mountains raise abruptly in to a spectacular jumble of steep, glacier-clad ridges and peaks, and deep, Forest River canyons. The tallest of the peaks, dubbed mount Olympus by British captain John Meares in 1788, has given the range and isolated peninsula it occupies its name.

More than 1400 square miles (3734 square kilometers) of the untrammelled heart of the Olympic peninsula have been preserved within the boundaries of Olympic National Park. It encompasses rugged mountains, wild, free-flowing rivers, a pristine wilderness coast and the largest preserve of old-growth forest in the temperate world.

It was this abundance of resources and wildlife that led Theodore Roosevelt to establish the Olympic National monument in 1909.in 1938Franklin D. Roosevelt signed the bill that created.

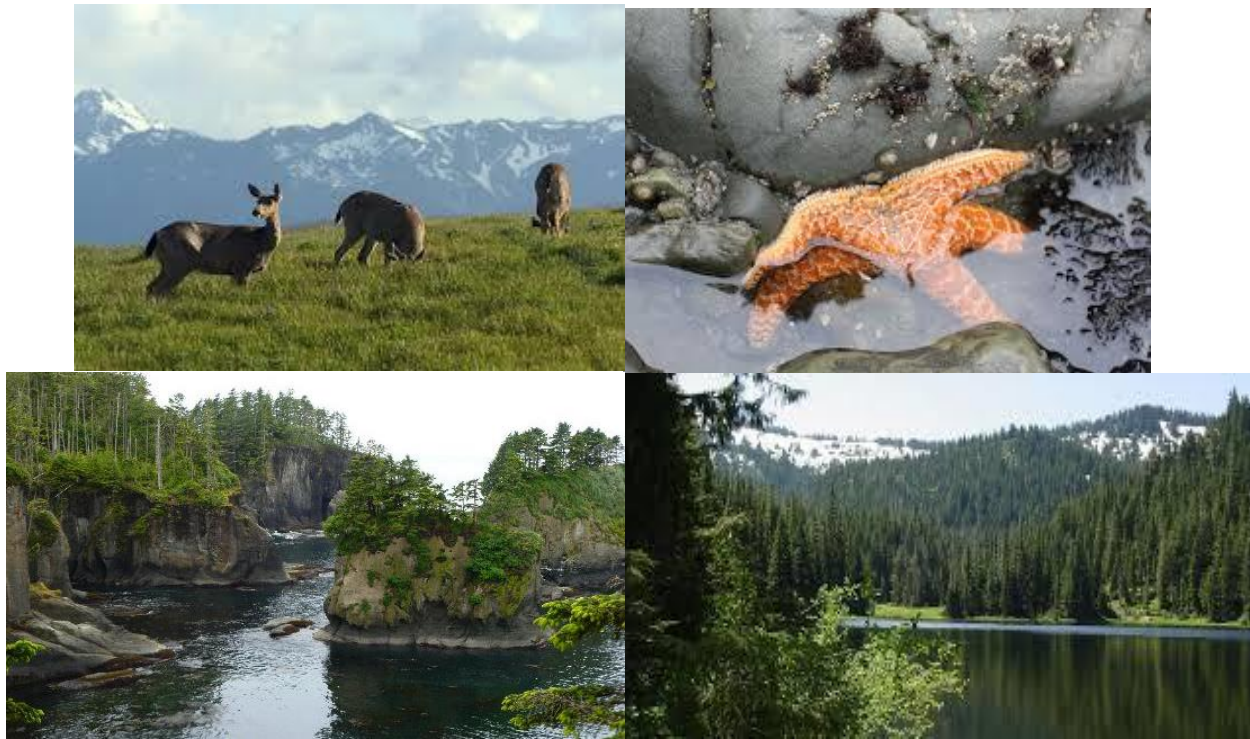


Picture 2: The site of the Olympic national park in Washington State



Picture 3: Nearby and important sites in Olympic national park

- |   |                                       |
|---|---------------------------------------|
| 1. North Coast Hike                     | 9. North Fork Quinault River Trail    |
| 2. South Coast Hike                     | 10. Graves Creek Trail                |
| 3. Bogachiel River Trail                | 11. Skokomish River Trail             |
| 4. Seven Lakes Basin - High Divide Loop | 12. Main Fork Dosewallips River Trail |
| 5. Appleton Pass Trail                  | 13. Upper Graywolf River Trail        |
| 6. Hoh River Trail                      | 14. Grand Valley Trail                |
| 7. Queets Trail                         | 15. Elwha River Trail                 |
| 8. Skyline Trail                        | 16. Lake Angeles Trail                |



Picture 4: The wildlife in Olympic National park

#### 2.4.2 Asir National park- Saudi Arabia-Abha (ريهام سمير، 2014)

Asir National Park, the first of its kind in the Kingdom located in the southwestern part of the country. Mainly it established to preserve the natural resources due to the characteristic of the Asir region of great environmental characteristics of its mountains towering composed of volcanic and metamorphic rocks and diverse forests dense, which known as the Arab shield.

Studies and designs of the park began in 1976 but the first steps of implementation began in -1979 while the park opened its doors to welcome the pioneers in 1981

It covers an area of 455 thousand hectares and amounted to the cost of establishing its approximately 60 million SAR, it Embodies the region's environment in its parts developed, consisting of the following locations:

- Visitors Center, which is located in the city of Abha, and it contain a national museum that includes photographs illustrate the monuments and natural models for visitors also models of some mummified animals that live in the area. The Center provide all adequate information about the region and its environment, and it is the beginning when you visit the park has a pictures for the region, display screens and a cable car.
- Prince Sultan Park has an area of 420 hectares which is provided by all services and features also contain valleys' views, sports courts and recreational gymnasium.
- Souda Park has an area of 883 hectares and rises from sea level 3000 m. This park is the largest developed sites in Assir, and has a unique environmental characteristics,

that is include a densely trees of juniper ,rock inscriptions dating back more than 3,000 years , cable car services and also all other aspects of services.

- Delgan Park
- Asir Marine Park
- Al-Jarra Park
- Al-Hdaba Park
- As-sahab Park



Picture 5: The site of Asir National Park in Saudi Arabia





Picture 6: The wildlife in Asir National Park

Chapter 3: program to design  
A national park in Palestine  
(Tubas national park)

### 3.1 Introduction

The need for a Palestinian national park stems from several possibilities and targets that will be investigated in various aspects of political, economic, tourist, social and planning at both national and local levels

### 3.2 The main outcomes to establish national park in Palestine

#### 1- A set of criteria to choose site for the national park in Palestine

Based on these criteria it would be easy for the competent authorities to choose a suitable site for the establishment of the national park in the West Bank , these criteria are summarized as follows

- The area of land that allocated to the National Park: The area varies from region to region and from country to another, but in the Palestinian case there is no accurate determination of the amount of area, but it must be large area so give the impression to dominate for visitors to the park and larger than the area of regular parks in the West Bank ,as a result the area is not 100dunum neither 100,000 dunum
- The Biodiversity: the land must be bio diverse whether vegetarian diversity , animal diversity and the diversity of views of the beautiful rocky, it should to be nature reserve
- The region allocated to the National Park should be far away from residential areas development, if the residential expansions develop towards these areas there must be policies that limit or even prevent it.
- The area should to be usable so that the visitors enjoy certain activities, such as camping, hiking, and climbing mountains.

#### 2- Master plan for the proposed national park

This plan shows the divisions of land use in the area and the street network that will serve these parcels whether existing or proposed, as well as planned will explain some of the important elements such as the visitor center , the main hotels, restaurants, main entrances and parking.

#### 3- Detailed plans

This will be of larger scale than the master plan and describes some of the design elements of some of the important areas in the park, such as the soft and hard scape, meetings of visitors, pedestrian and vehicle paths, lighting elements , traffic and how to get in and out of parking.

and finally legal aspects of the establishment of this kind of parks or those that must be taken into account before starting the establishment of the park.

### 3.3 The workflow of Submitting a proposal for a national park in Palestine (Tubas National Park)

#### 1- Data collection

This phase includes the collection of knowledge and information to understand the concept of national park and information about the possibility of establish this kind of parks in the West Bank as well as the knowledge of the concerned authorities to obtain information.

#### 2- Site selection: at this stage a suitable site is chosen in the West Bank based on a set of criteria have been mentioned previously(see 3.1)

#### 3- Analysis of site and all its information: This is a very important stage where we will study the site a detailed study in terms of environmental, administrative, regional and geopolitical aspects and these require field visits to the site and communicate with those responsible for the site to obtain the necessary information.

#### 4- Output necessary plans: At this stage we'll prepare the expected outputs of the project that have been mentioned previously (see3.1), so this is the heart of the project and we will use a special computerized programs such as geographic information systems (GIS) and AutoCAD and other tools of the output.

#### 5- Impact study: at this stage we will study the impact assessment of the national park production on the West Bank and the parks' region and this will include economic, environmental, political and social aspects assessment.

#### 6- Take out the final draft of the report, the structural plan, some key maps and final presentation to illustrate the nature of the project.



### 3.4 General objective

#### 1- Environmental objectives

- Protection of bio-diversity that exists in the region
- The protection of the forest areas from urban sprawl
- Air purification and soil conservation

#### 2- Geopolitical objectives

- Protection of sensitive areas of Israeli aggressions
- Support symbolic value of the land

#### 3- Economic and tourist objectives

- Support the internal and external tourism
- Increase in the movement of Transportation in the area
- Providing jobs during the construction and operation of the project

#### 4- Social objective

- Provide recreation areas for citizens which contribute of the improvement of psychological and health aspects for them
- Increase citizens' awareness about the importance of protecting their land
- Providing jobs during the construction and operation of the project

#### 5- Planning and spatial objective

- Restrict urban sprawl toward areas of biodiversity

## Goals and orientations

Goals	orientations	Actions
Environmental	preservation and development of Biodiversity	<ul style="list-style-type: none"> <li>-Planting plants exposed to extinction fit the region's environment</li> <li>-Prevent deforestation or burned</li> <li>-Encourage proliferation of animals existing in the region</li> </ul>
Geopolitical	protection of the Palestinian land identity	<ul style="list-style-type: none"> <li>-Give the Palestinian character of the facilities</li> <li>-Rehabilitation of archaeological sites surrounding</li> </ul>
Economic and tourist	Increase the number of tourists to the region	<ul style="list-style-type: none"> <li>-The establishment of hotels and restaurants</li> <li>-Rehabilitation of archaeological sites surrounding</li> </ul>
Planning and spatial	Improve the urban environment for citizens	<ul style="list-style-type: none"> <li>-Restricting urbanization in the areas of bio-diversity</li> <li>-Provide green and open areas</li> </ul>
Social	<ul style="list-style-type: none"> <li>-Increase people's awareness about the importance of preserving the land</li> <li>-Improving social and health status of citizens</li> </ul>	<ul style="list-style-type: none"> <li>-Provide jobs</li> <li>-Provide areas for recreation</li> </ul>

Table 4: Goles and orientations

### 3.5 Vision

A Palestinian National Park, attractive tourist destination, protects the environment and enhances the biodiversity.

As shown in the vision above it is focusing on three main components:

- Tourist attractions
- Protection of the environment and biodiversity
- National level

To achieve the vision components, There are many activities that should be available in the national park and thus the desired goals will be achieved .The functions in the park can be classified as follows:

#### 1-manegment and public services

- Information Center
- Emergency Center
- Health center
- Mosque / Church
- Parking

#### 2-Tourist/economic services

- restaurant
- hotel
- Recreation areas
- zoo
- Botanical garden
- Hiking areas
- Camping areas
- Barbecue area
- Recreation areas

#### The relationship between the activities and goals

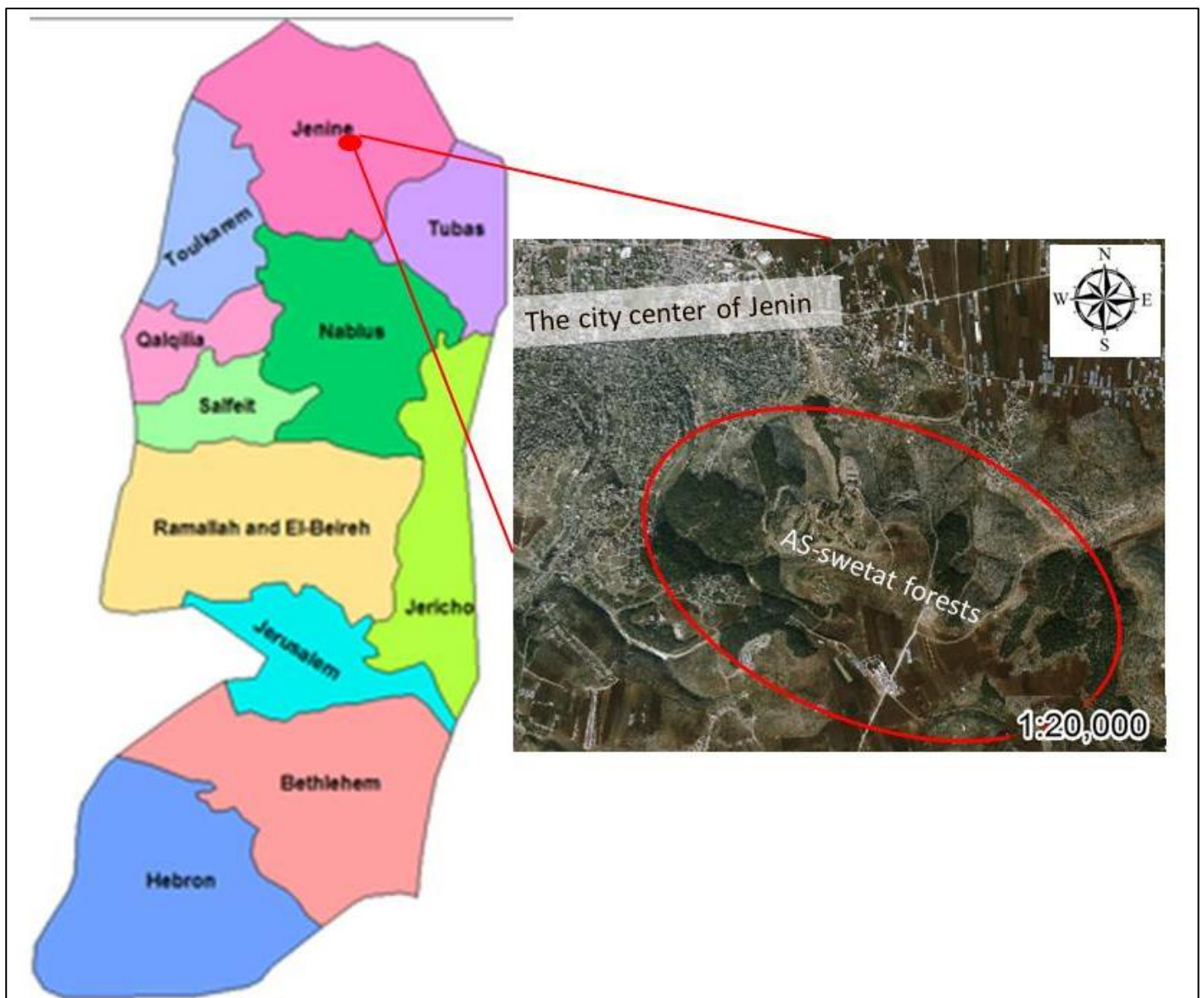
The previous elements mentioned above orient to achieve the desired vision which means put the three basic vision components in action. For example, the existence of the restaurant, hotel and Hiking areas contribute to support the tourism movement, whether at the local or regional level, as well as the areas classified as recreation areas, camping, Lands Protection and Botanical Garden are all areas contribute to preserve the bio-diversity that exists in the region and protect it from disappearing due to urban sprawl or human intervention.

### 3.6 Site selection

Site selection process is subject to a set of standards that fit with the Palestinian case, the proposed areas requires to be within the classification of reserves or forests or biodiversity areas by the Palestinian Spatial National Plan to achieve the main objective of the national park which is environmental protection, and here we will differentiation between the two alternatives proposed for the National Park

#### 1-As-swetat forests

Swetat forests located to the south-east of Jenin after (2 km) from the city center, an area of about 3,000 donums covered with beautiful forest trees and used for domestic tourism in Jenin Governorate



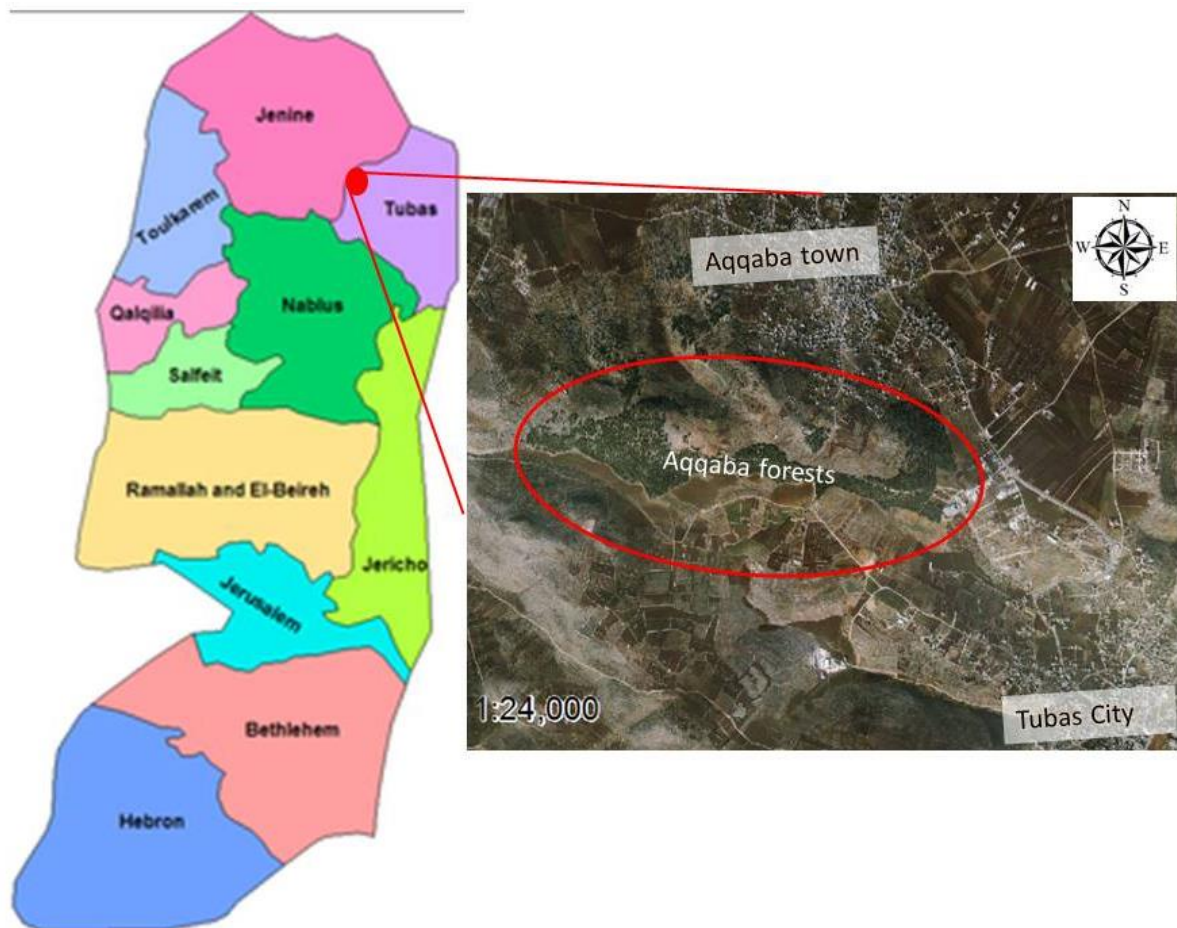
Picture7: The location of the first alternative



Picture8: The forests in the area

### 1-Aqqaba-Tubas forests

Located in the north west of the city of Tubas, which are within the administrative boundaries of the city of Tubas and the town of Aqqaba, they have a broximatliiy an area of 700 donums.



Picture9: The location of the second alternative



As-swetat forests



Weighing according to  
specific criteria



Aqqaba forests

Picture10: Site selection process



Picture11: The forests in the area

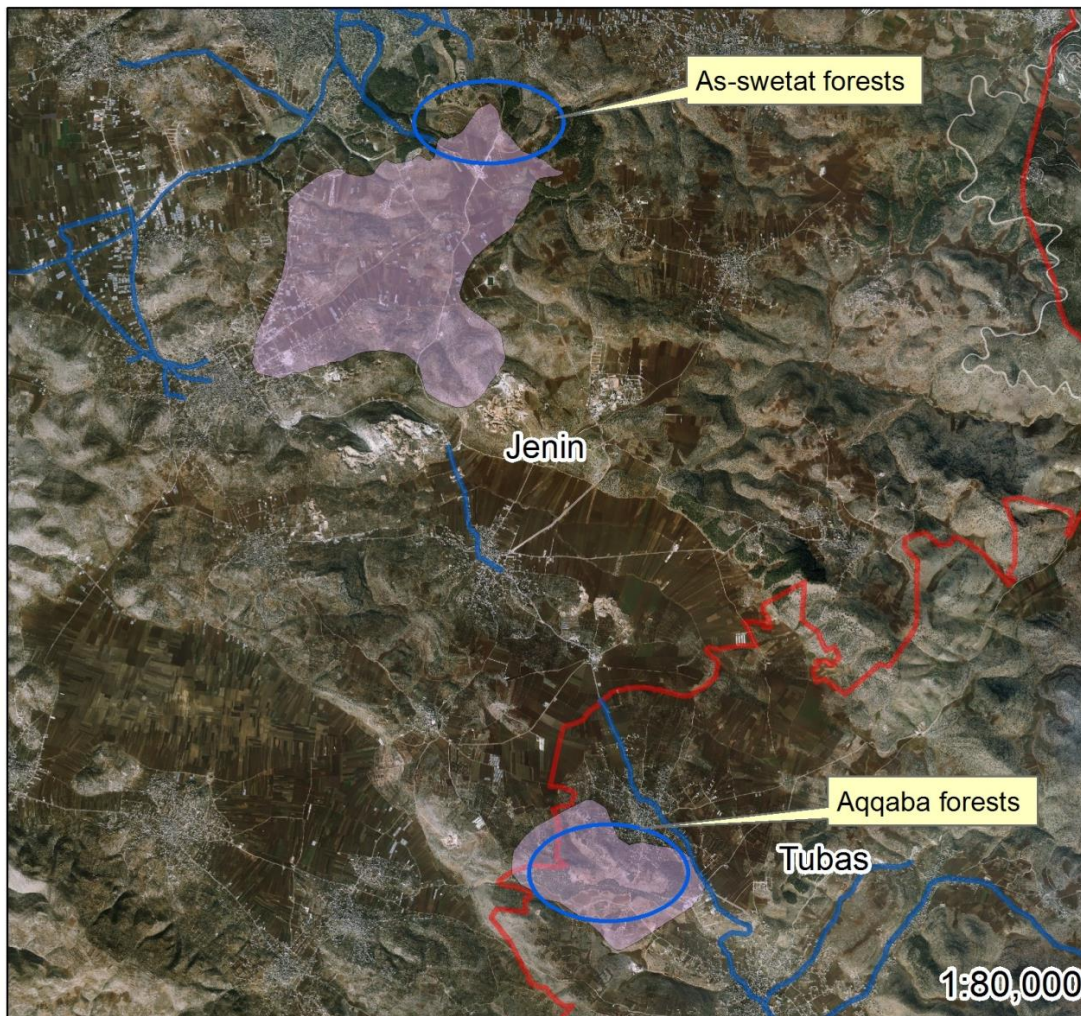
## Site selection criteria

Criteria	Weight <sup>(*)</sup>	Grade (As-swetat forests)	Grade(Aqqaba forests )
The Biodiversity <sup>(1)</sup>	10	**	*****
The area(more than 200 donum) <sup>(2)</sup>	7	****(4100 donums)	*** (3000 donums)
Geopolitical factors <sup>(3)</sup>	7	****	***
Distance from residential areas development <sup>(4)</sup>	5	***	****
usable to enjoy certain activities (Topography and slope) <sup>(5)</sup>	6	***	***
<b>Total</b>		<b>109</b>	<b>130</b>

Table5: Weighting table

(\*) the higher weight means more important criteria

Criteria (1): the land must be bio diverse whether vegetarian (Oak, pine, cypress, Pistacia saportae and other herbs) diversity, animal diversity (Hyenas, deer, jackal and kinds of birds such as, Goldfinch, Eagle, Woodpeckers) and the diversity of views of the beautiful rocky, it should to be nature reserve



The allocation in  
a bio diverse area



### Legend

#### Roads

- primary
- secondary
- Biodiversity
- Governorate\_WestBank

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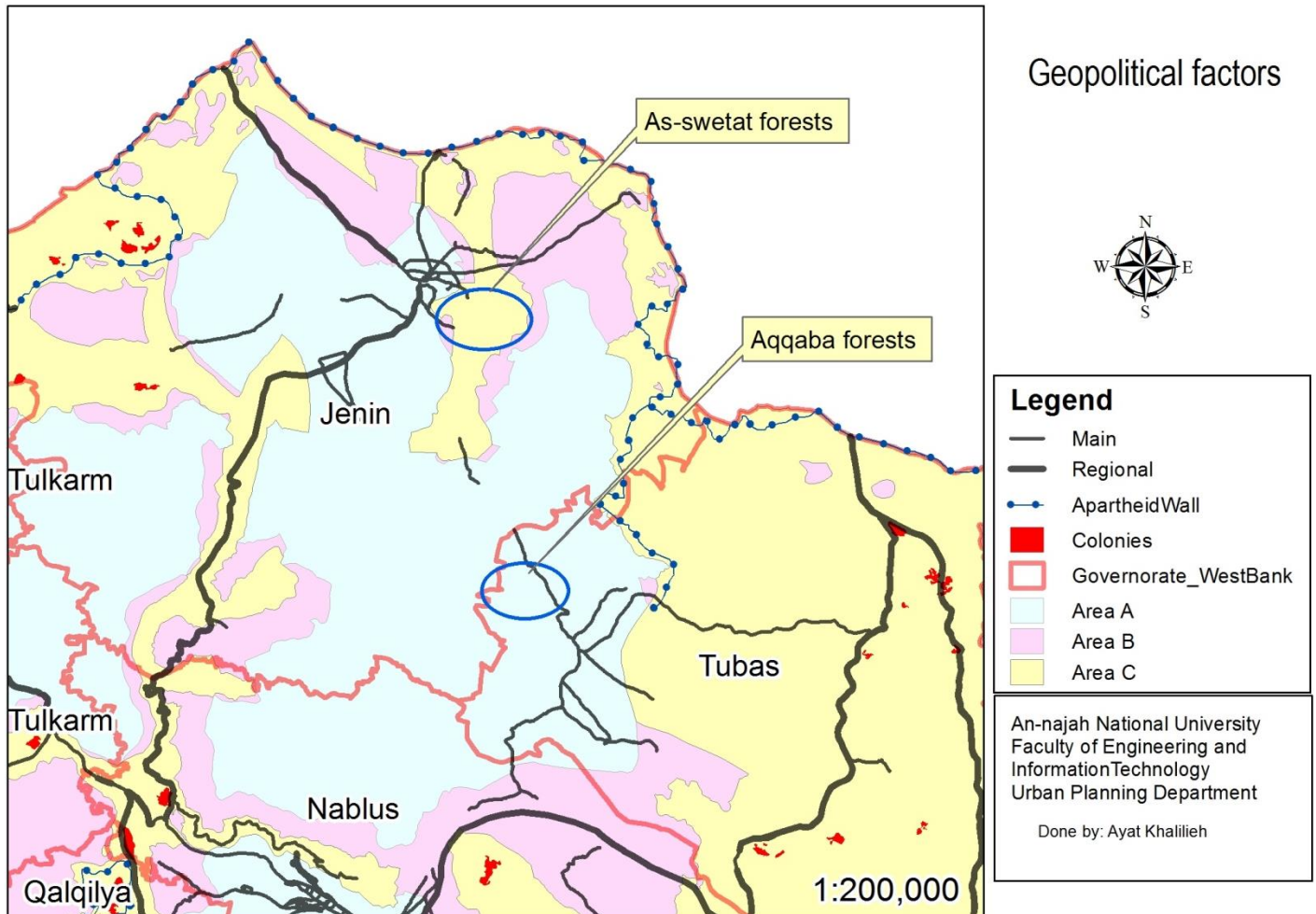
Map4: The Allocation in a bio diverse area

As shown in the above map the whole area of Aqqaba forests located in a bio divers area while a small area in AS-swetat forest classified as a bio diverse area, so the second Alternative well get higher grade (see the table in p 6)

Criteria (2): The area varies from region to region and from country to another, but in the Palestinian case there is no accurate determination of the amount of area, but it must be large area so give the impression to dominate for visitors to the park and larger than the area of regular parks an in the West Bank and enough to establish certain functions ,as a result the area(according to the Palestinian situation) is not 100donums neither 1,000,000 donums (the area of west bank 5844 km<sup>2</sup>),since the first alternative has a bigger area it well get higher grade (see the table in p 6)



Criteria (3): the land be in conflict points with the Israeli occupation )areas c , close to settlements ,the apartheid wall or exposed to Israeli assaults, such as road construction for the purposes of occupation or the remnants of occupation in this kind of land)



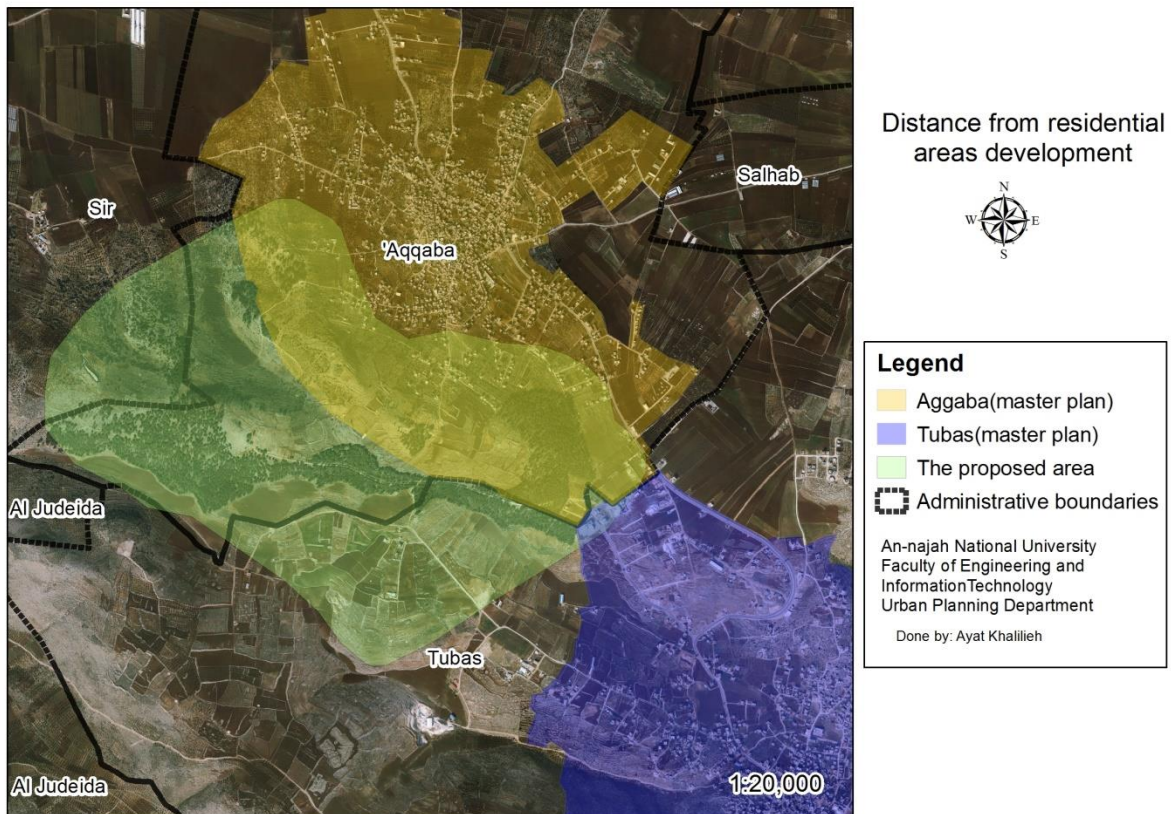
Map5: Geopolitical factors

As shown in the map above, AS-Swetat forests located within C territory according to the Oslo agreement while Aqqaba forests located within A territory, so the first alternative will take a higher grade (see the table in p 6)

Criteria (4): according to the master plan the area should be out of future residential development or classified as green ecological zones



Map 6: Jenin master plan

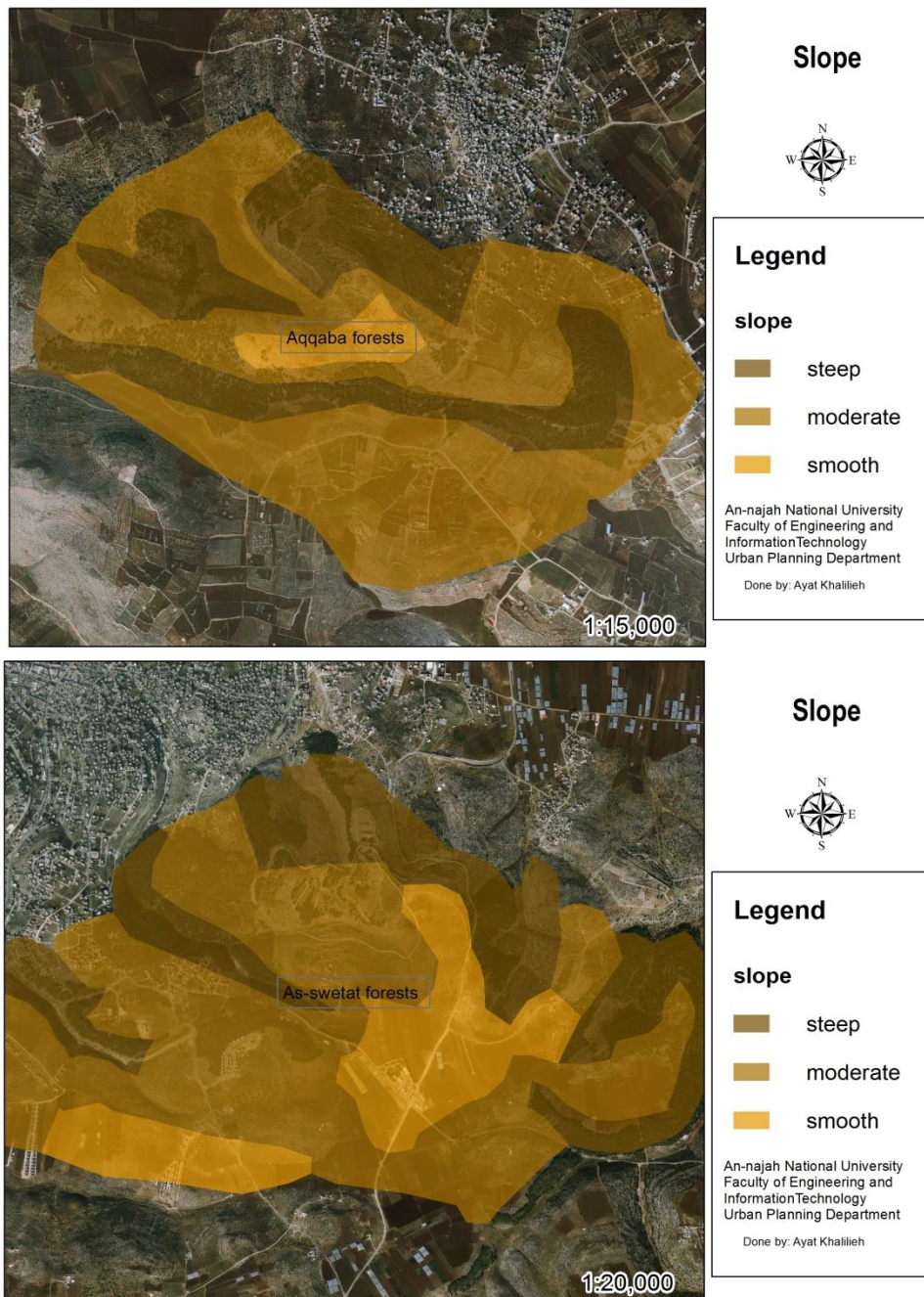


Map 7: Tubas and Aqqaba master plan



As described in the previous maps, the future urban expansion Extends towards the both sites, but urban sprawl in Jenin (first alternative) larger than the urban sprawl in each of Aqqaba town and Tubas city (second alternative) and therefore the second alternative will get higher grade (see the table in p 6)

Criteria (5): The area should to be usable so that the visitors enjoy certain activities, such as, hiking and climbing mountains, in other words the topography varies from steep slope for hiking and climbing mountains and smooth slope for recreation and man mad constructions

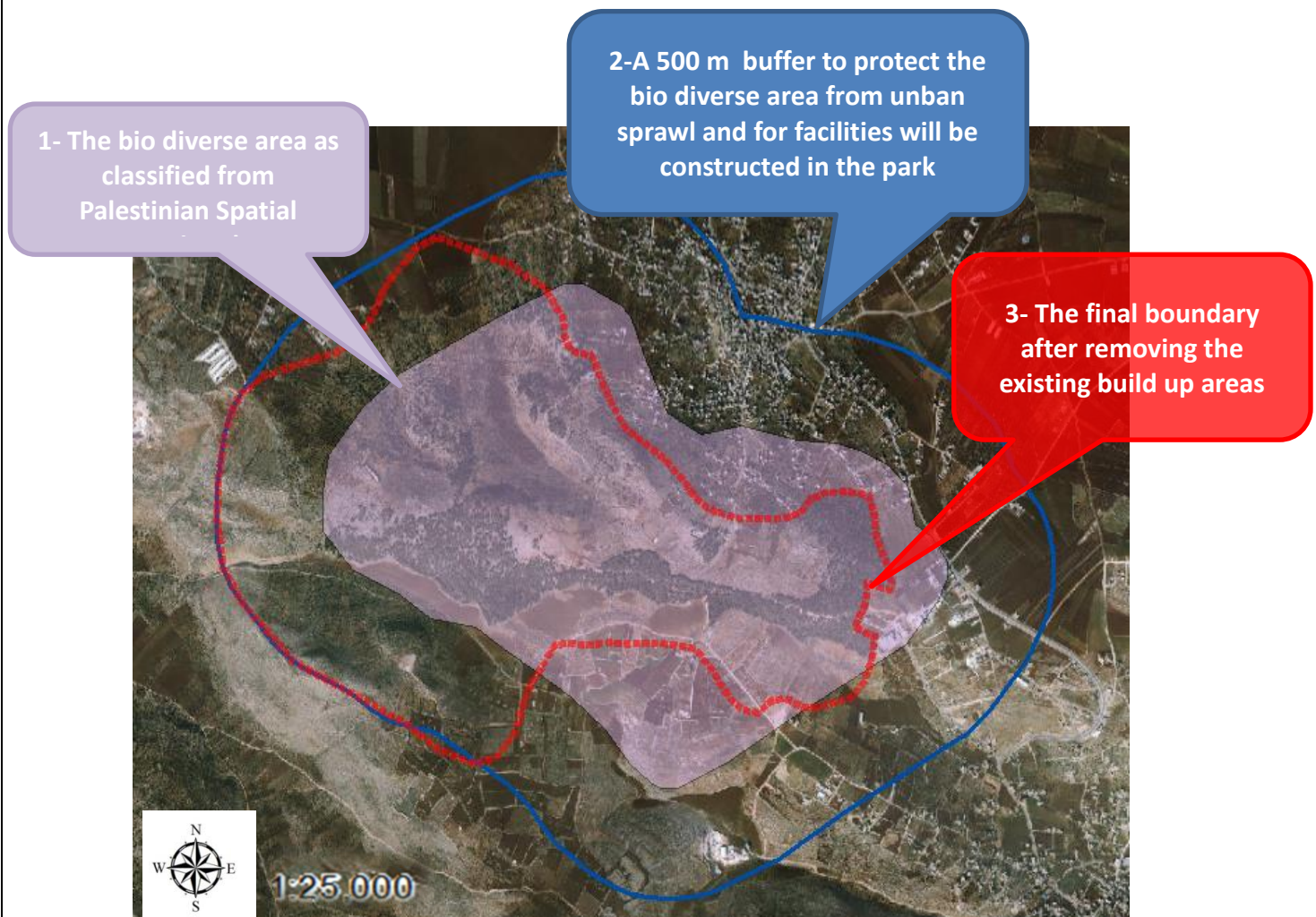


Map 8: The slope in both sites

According to the previous maps both site have a diversity of the slope so each of the first alternatives will get same grade (see the table in p 6)

After the previous comparison we notice that Aqqaba forests get higher mark (130), while AS-swetat forests get (109), As a result the proposed national park will be in Aqqaba forests

The boundary of the proposed park (How to get it?)



Map 9: The boundary of the park

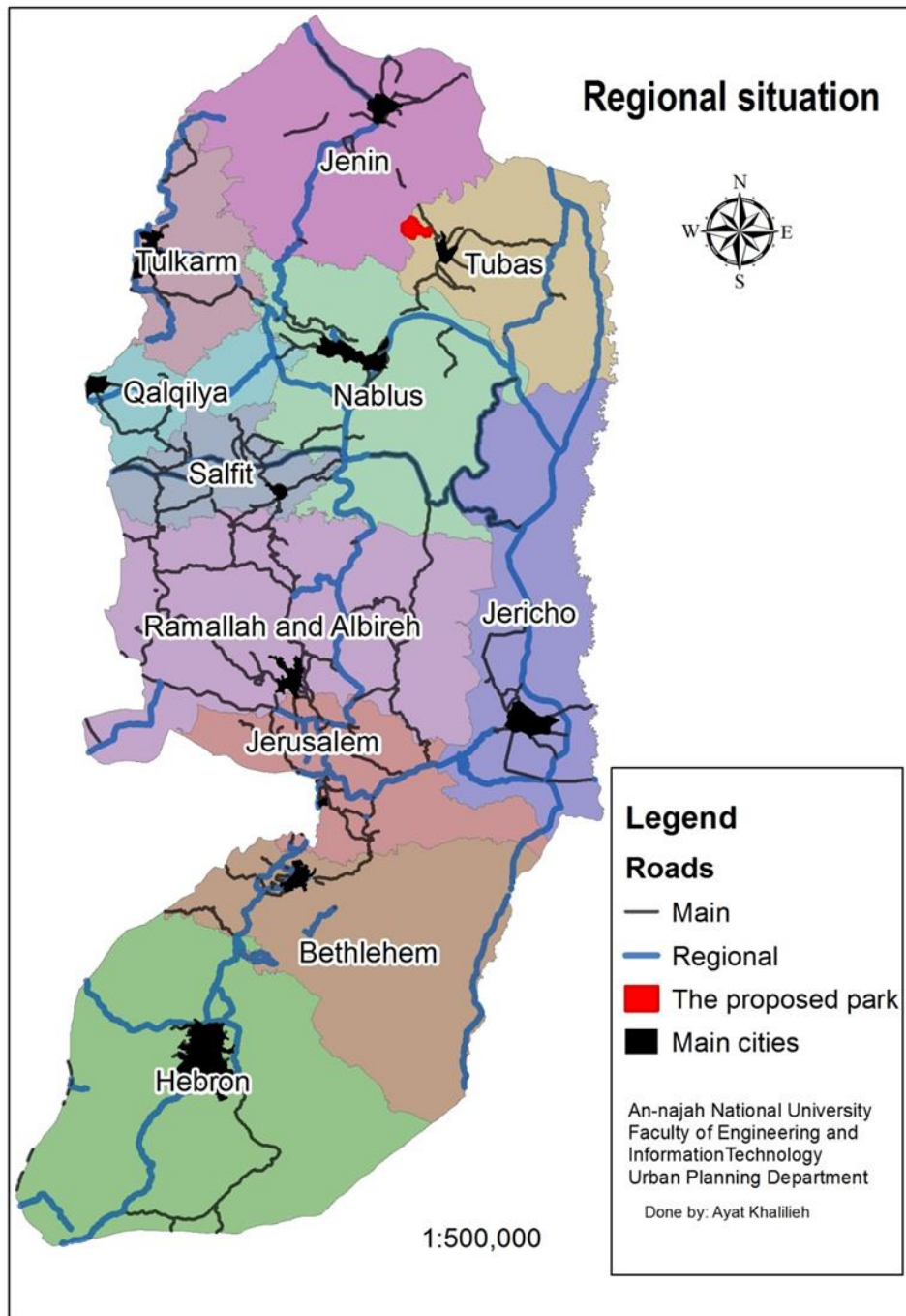
As shown in the map above, the proposed boundary contains all the area classified as bio diversity except those that contain built-up areas as well as a buffer zone to prevent any future expansion and contain the establishment of facilities for the park.



### 3.7 Site analysis

- Regional situation

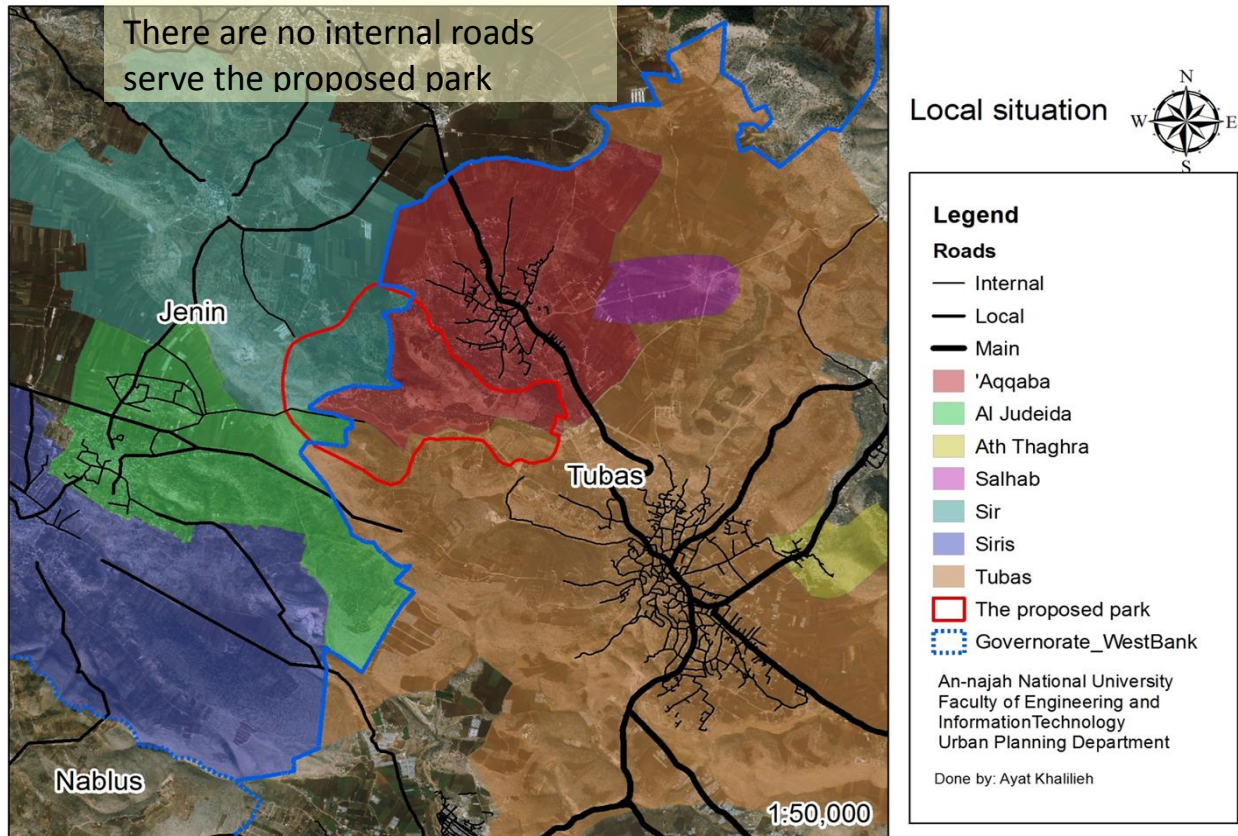
The proposed national park site in the north of the West Bank, Hebron governorate is the furthest one as far from the main city a distance of 96 km, while Tubas governorate the closest one as far from the main city about 6 km, also away from (Tubas- Nablus-Jericho) Regional road approximately 10 km and 12 km from (Jenin-Nablus) Regional Road. Look to the map below.



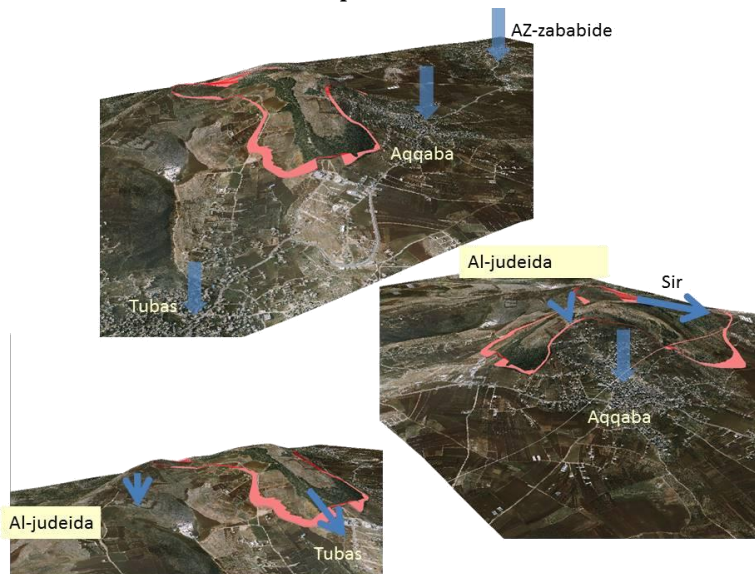
Map 10: Regional situation

- Local situation

The park is located in Tubas governorate on the border with Jenin governorate within the administrative boundaries of the villages of Aqqaba and Sir and the city of Tubas



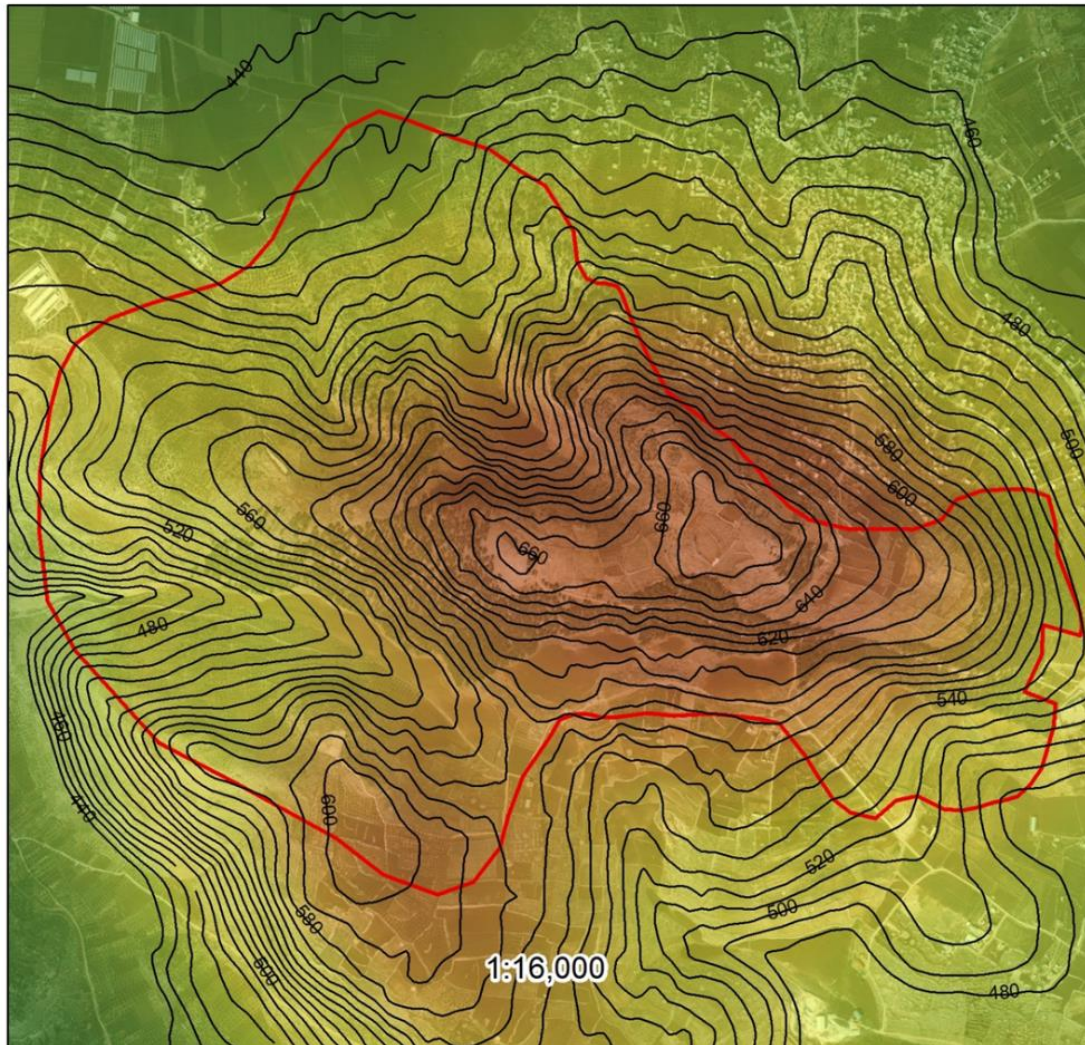
Map11: Local situation



Picture12: Local situation (3d)



The highest point in the park is about 660 m above sea level and then begins to decline at the boundaries to reach the lowest point 440 m above sea level, see the map below



## Topography

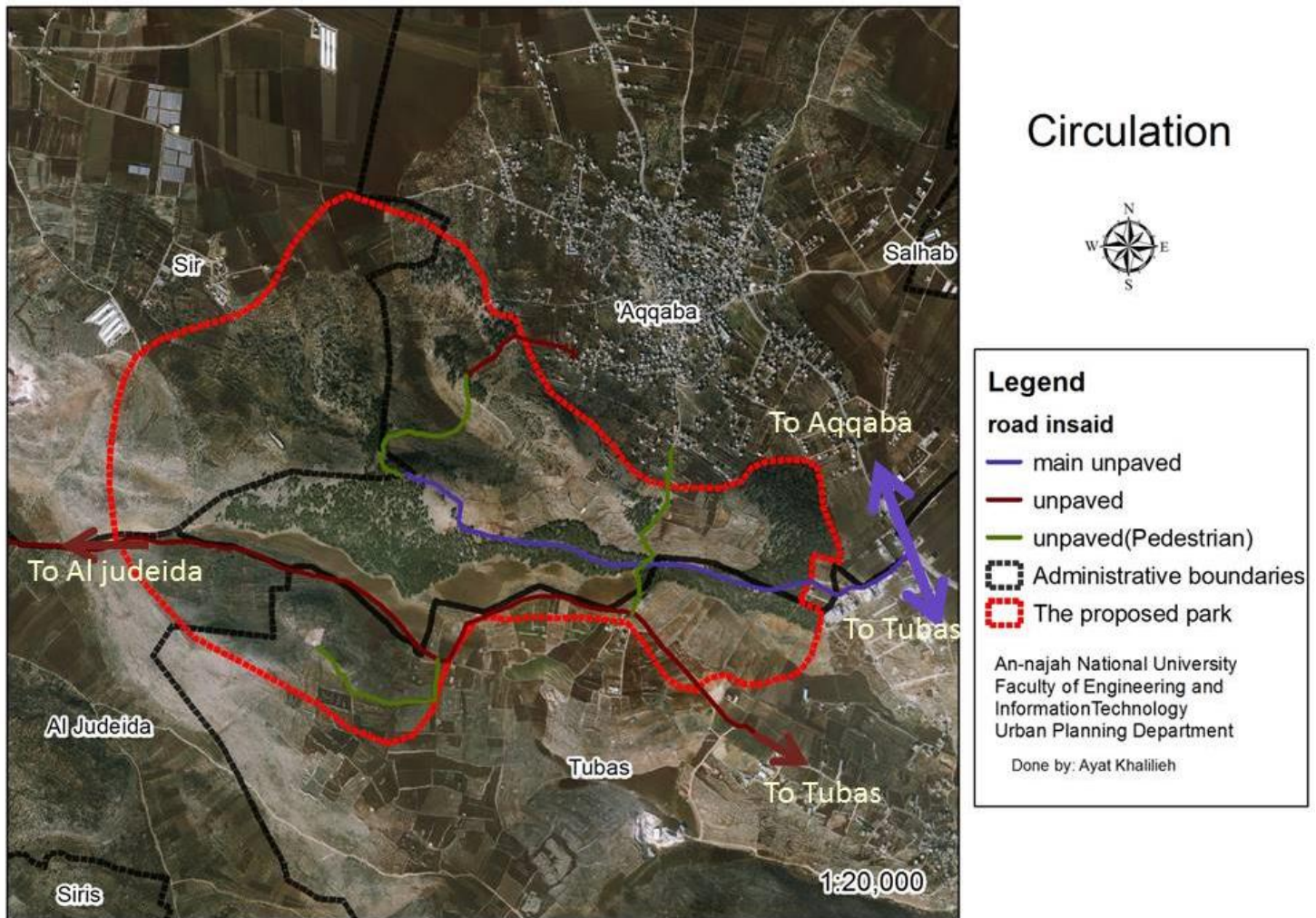
### Legend

- Contours-10m
- The proposed park
- High : 651.068
- Low : 420.474

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Map12: Topography



Map13: Circulation

The map above shows the current streets in the area, entrances and exits projected due to the existing roads. The current streets considered as weak network in terms of quantity, condition and design



Soil vary from one area to another within the land for the project and this provide suitable areas for different constructions



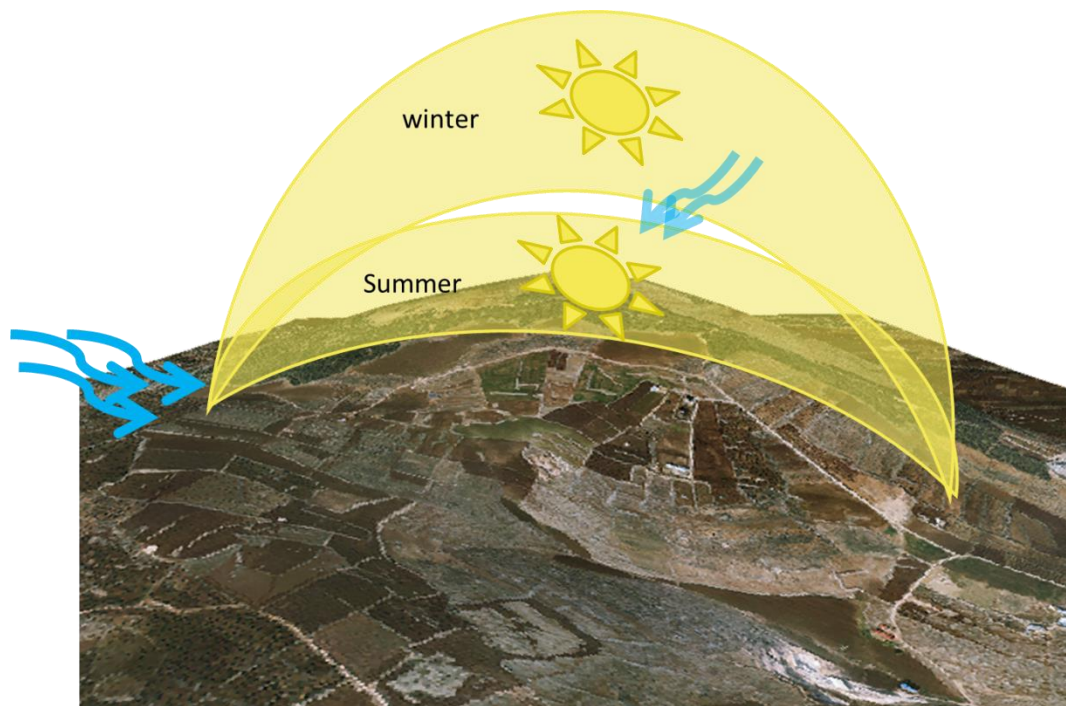
Agricultural clay soil



Rocky

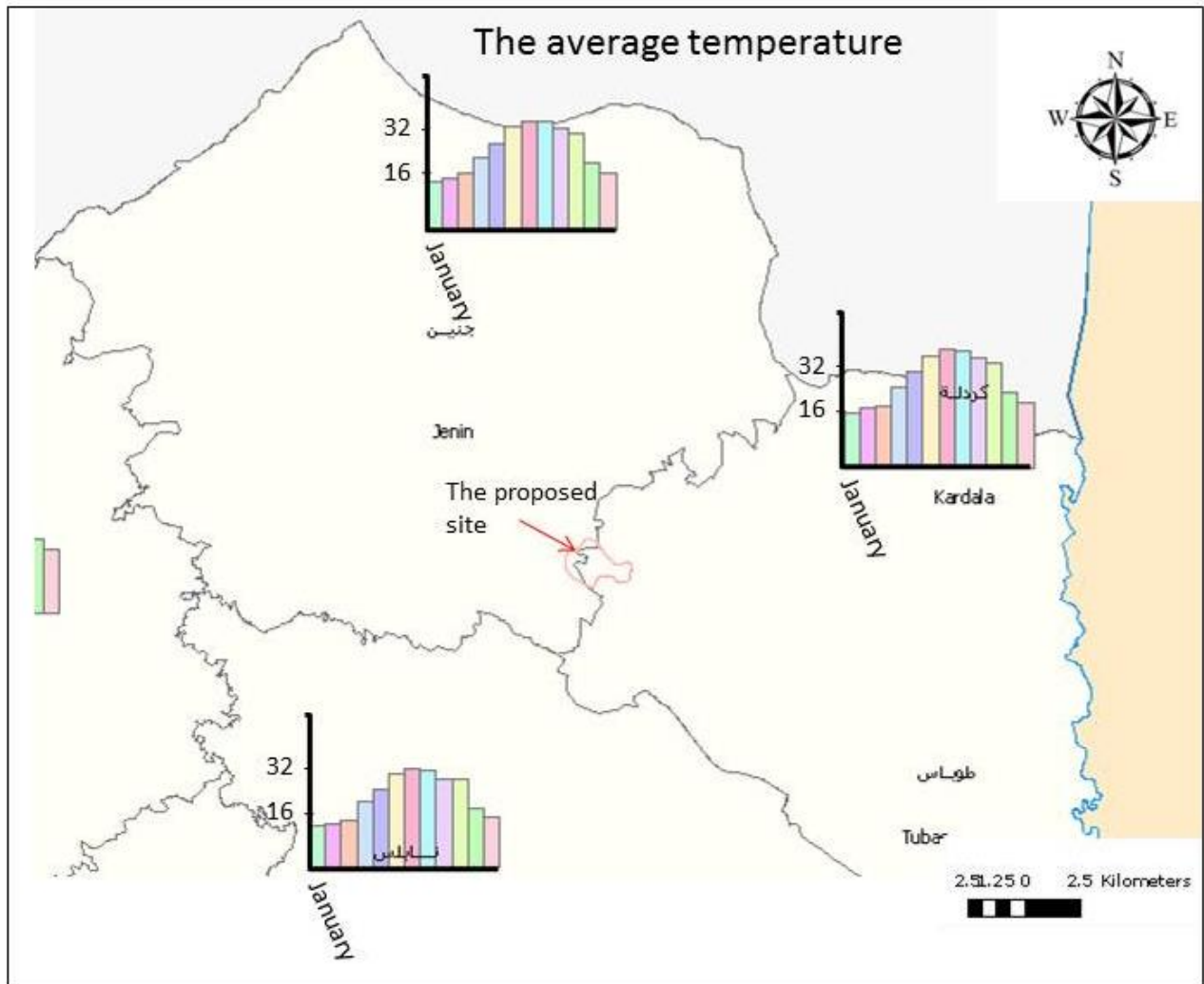


Picture13: Type of soil



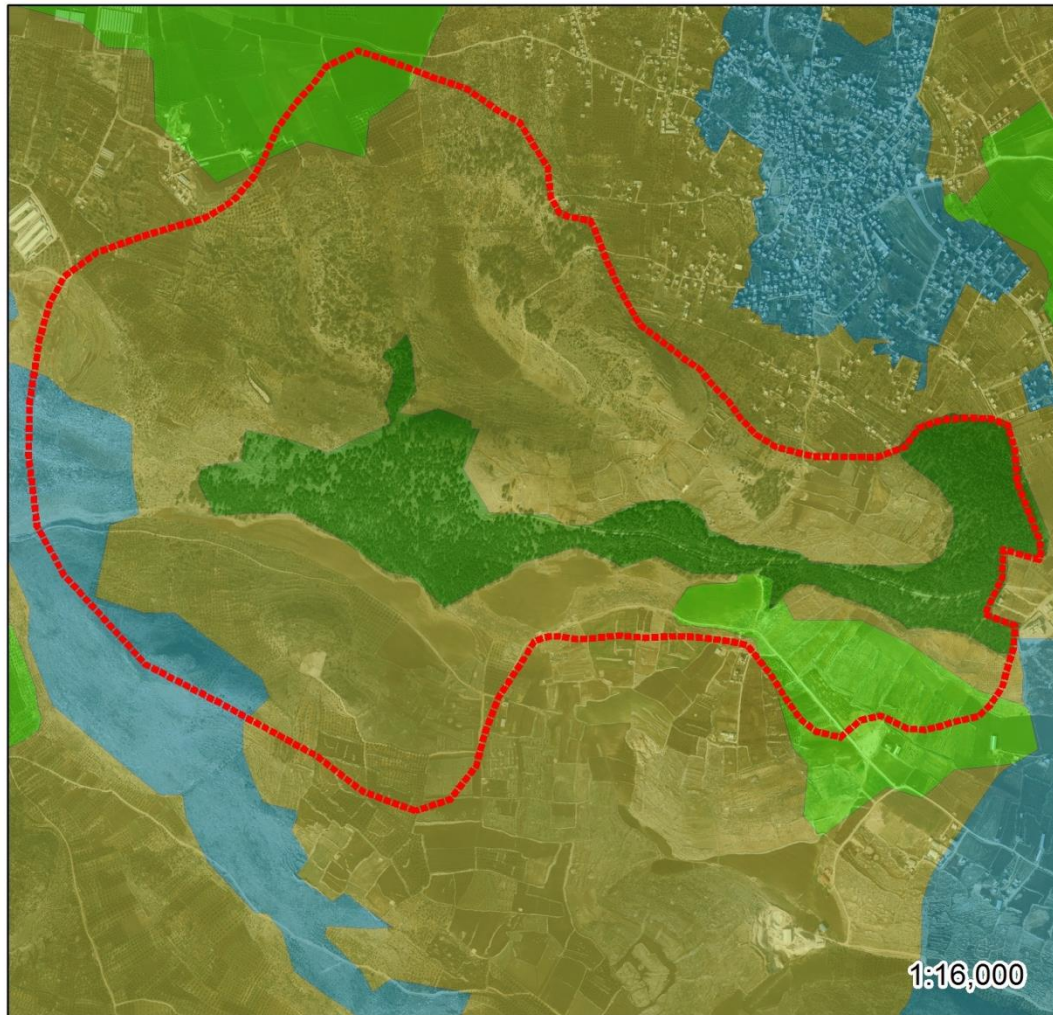
Picture14: Climate conditions

The climate follows West Bank general yearly situation which is hot in summer and cold in winter. The region affected by east and west seasonal winds medium speed.



Map 14: The average temperature

Generally, temperature is characterized in moderation. The average temperature in the region about 14-16 degrees Celsius in winter and 32-35 degrees Celsius in summer and map above shows the temperature over the months of the year in the project area.



## Agricultural value



### Legend

- High value of agricultural land
- Lands medium agricultural value
- Lands low agricultural value
- Forests
- The proposed park

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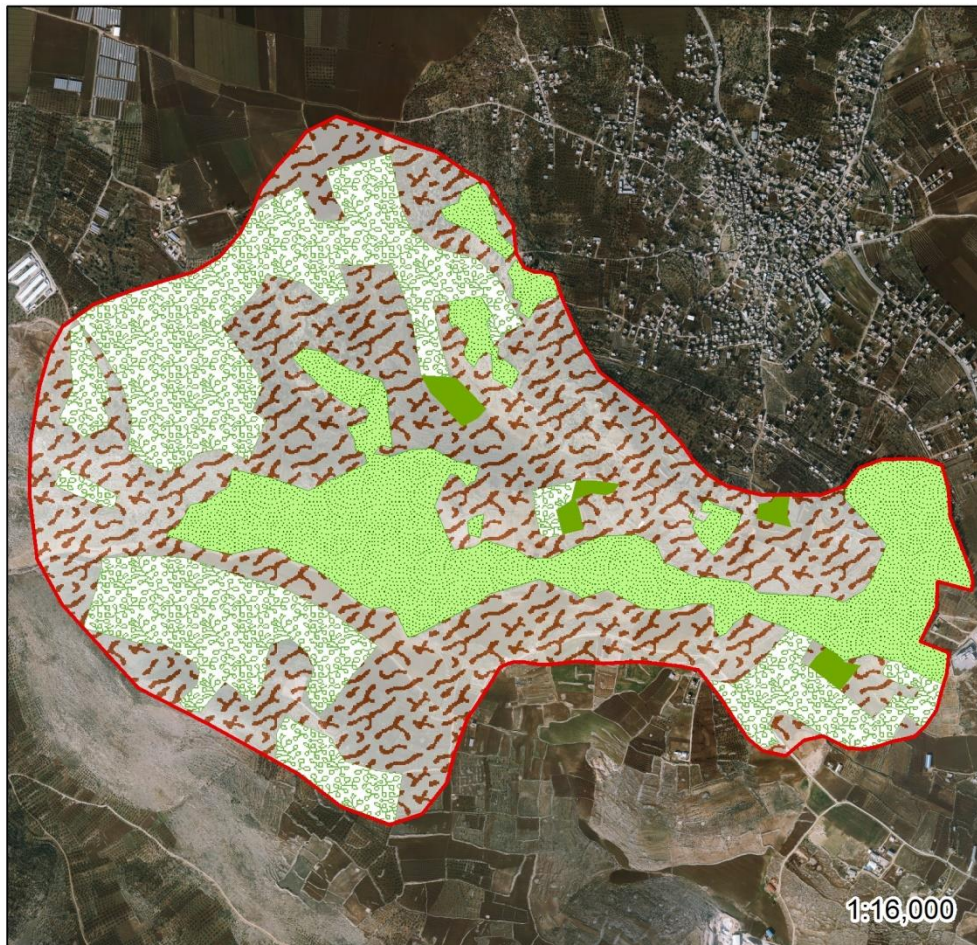
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Map15: Agricultural value of land

Classification in the above map of the value of agricultural land by the Palestinian National Protection Plan, this classification contains diverse agricultural values of medium and lowland, which allows the possibility of the construction for several facilities.



The map below shows the vegetation on the ground, which vary from the olive, almond and pine forests land cover to the open areas containing weeds such as Cyclamen Coum , Anagallis Arvensis and Malva Neglecta



## Vegetation type



### Legend

- The proposed park
- almond
- olive
- pine
- open

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Map16: Vegetation type



## Water analysis



### Legend

- Water well
- Water reservoir
- + Springs
- Wadis
- The proposed park

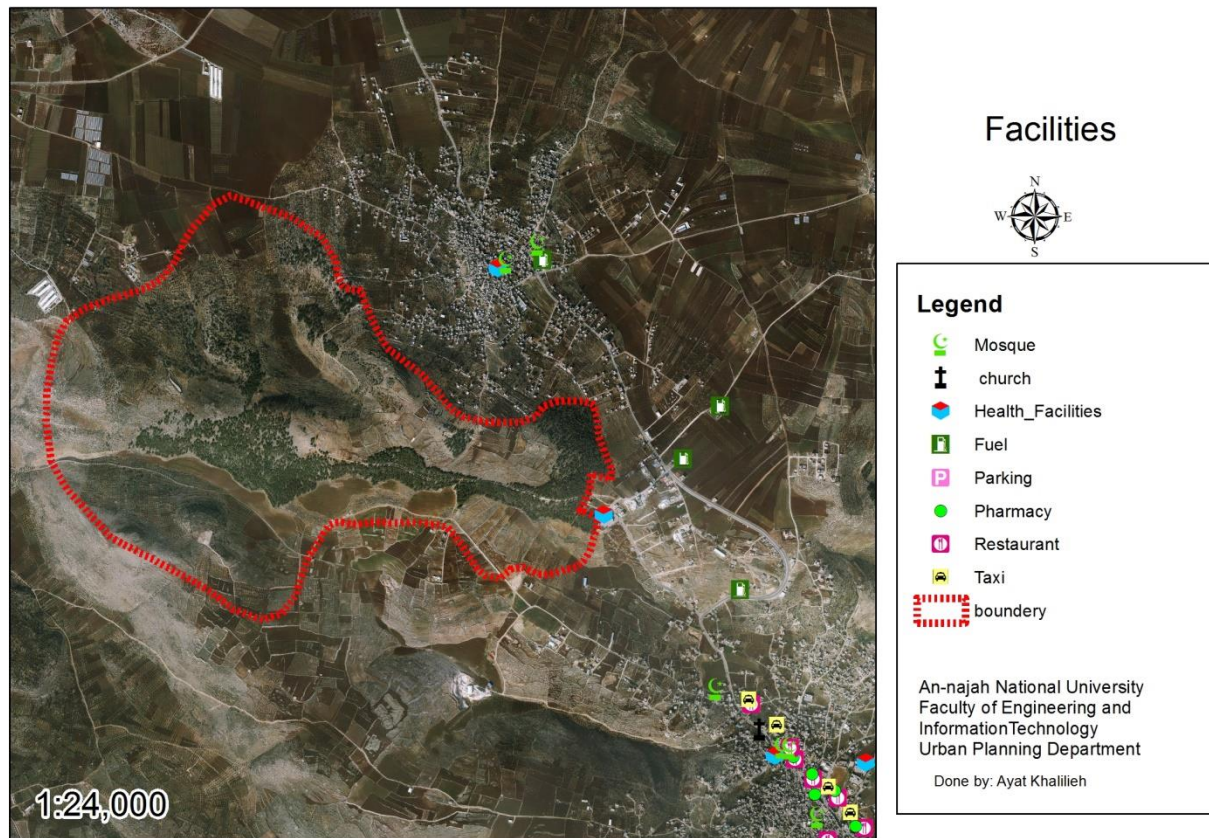
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Map17: water analysis

The water situation around, there are some valleys such as the Valley of Al-Far'a in the south of the site and Tubas valleys to the east and there are some wells and water reservoirs in the surrounding villages of the site as shown in the above map .





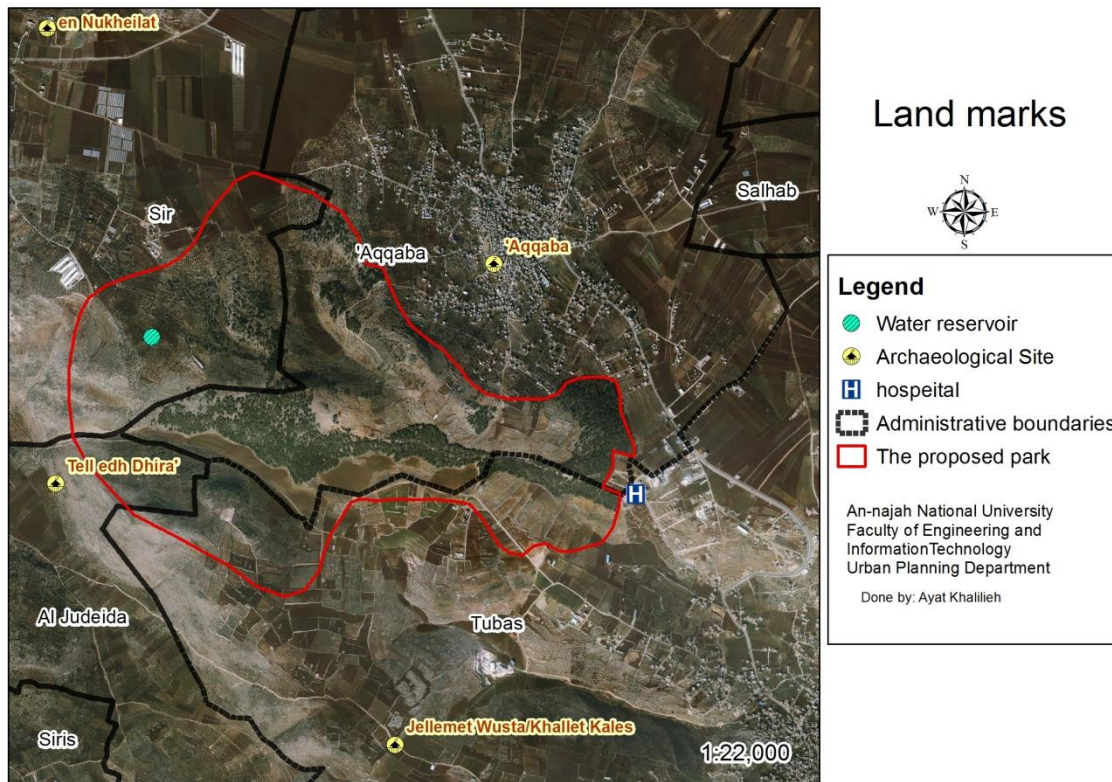
Map18: Facilities

Proximity to the city of Tubas, making the area around the proposed site containing many different services such as Tubas Turkish hospital, restaurants, mosques, pharmacies and commercial services along the main street.



Picture 15: Tubas Turkish hospital

The land marks of a region is a destination evidenced for park's visitors, the ancient hamlets and main services such as Tubas Turkish Hospital the most important land marks of the region.

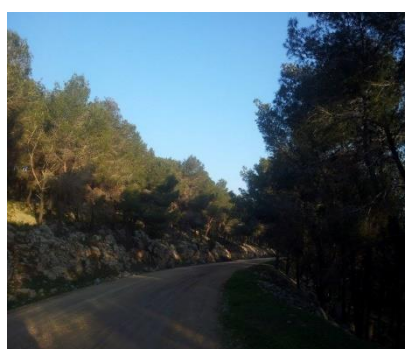
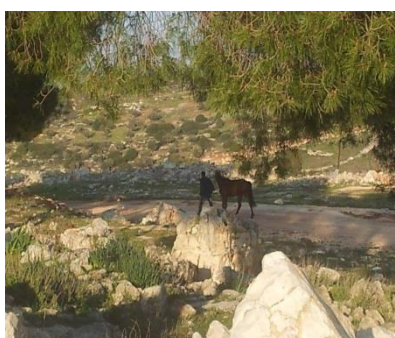
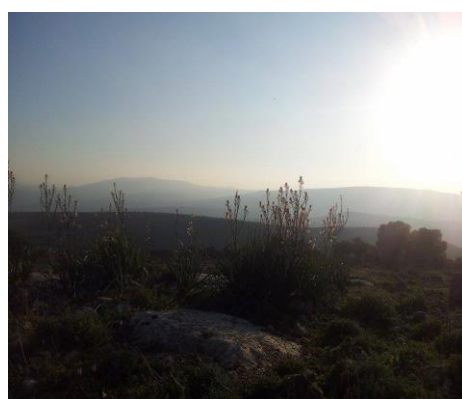
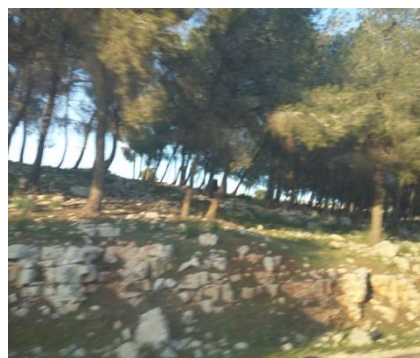


Map19: Land marks



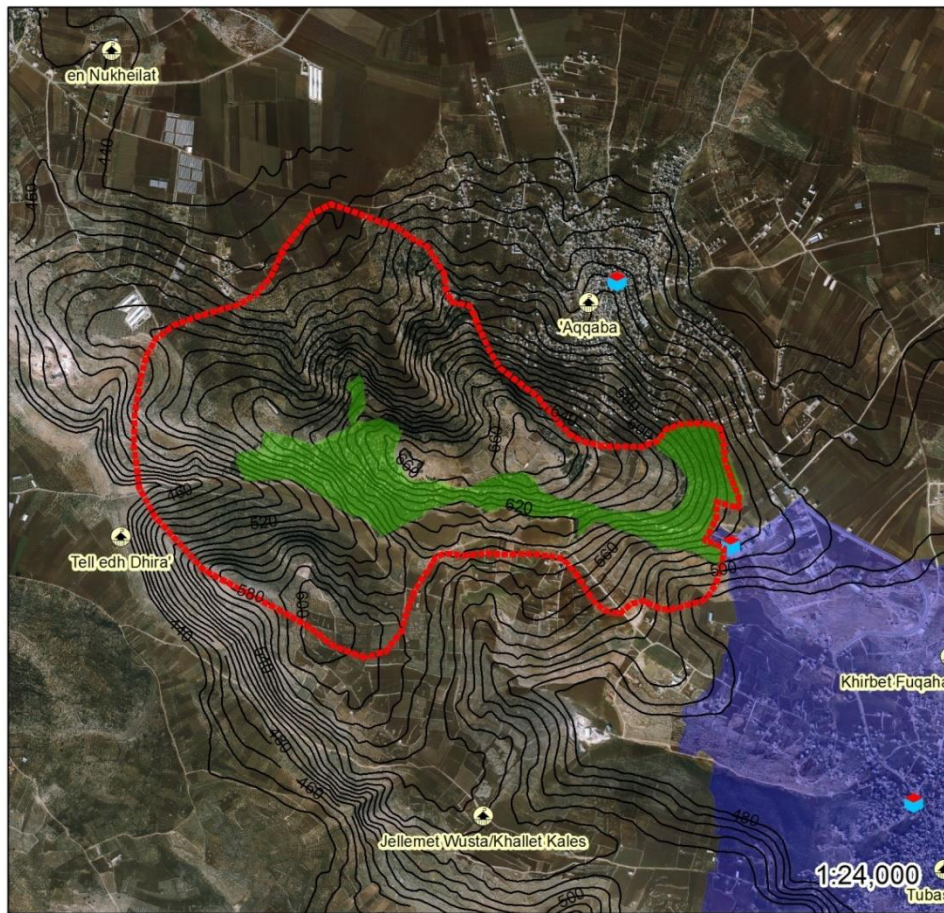
Picture16: Views from different sides





Picture17: Several natural views





Strength point +

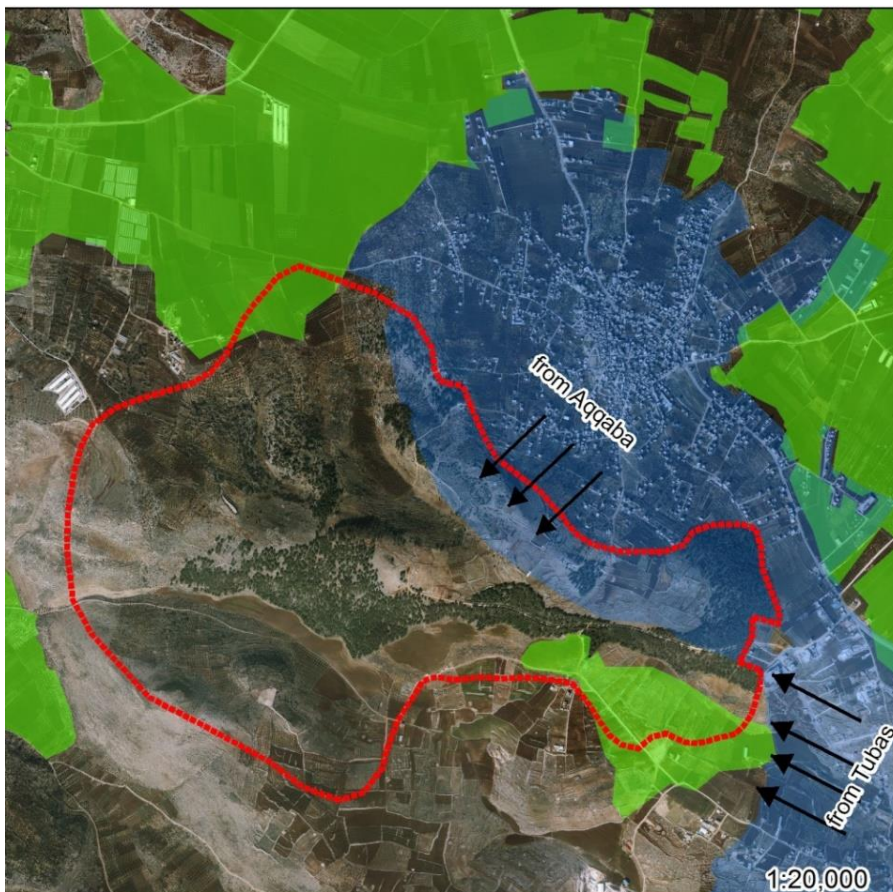


#### Legend

- Archaeological Site
- Health\_Facilities
- forests for Recreation
- Tubas city
- Contours-10m(Variety in slope)
- The proposed park

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Weaknesses —



#### Legend

- urban future expansion
- High value of agricultural land
- The proposed park

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Map20: Positives and negative



There are many strengths that make up the positives points which supports the project, such as the proximity of the city of Tubas and hence proximity to public facilities that can be needed by the visitors, such as health centers, mosques, and restaurants along the main street, also the use of the people for the area as a public place for hiking and Recreation makes the idea of a national park is encouraging and finally the nature of varied terrain promotes the idea of a national park too.

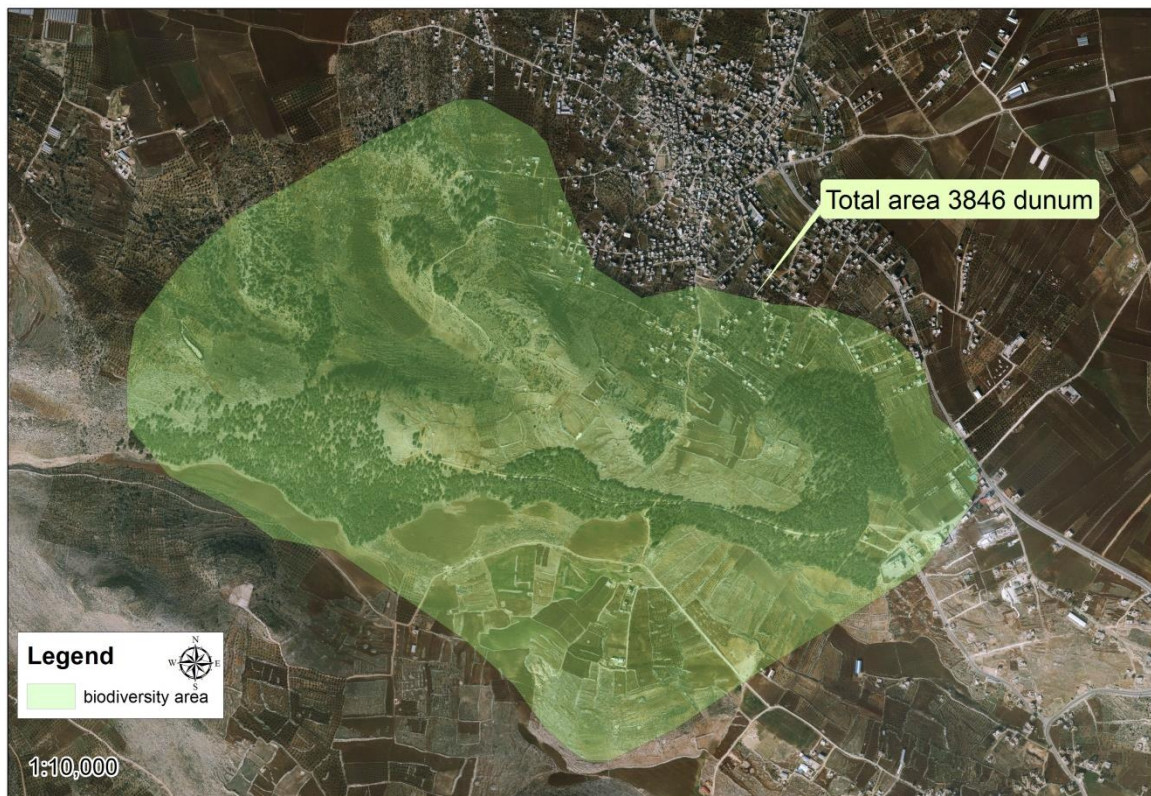
On the other hand there are many challenges facing the idea of a national park in the region, such as the urban sprawl of the city of Tubas and the village of Aqqaba toward the proposed site, also the weakness of the internal network of streets in the proposed area and finally the difficulty of the terrain in some places makes the construction of water and sewage network costly.

### 3.8 The design stage

#### 1-consept plan

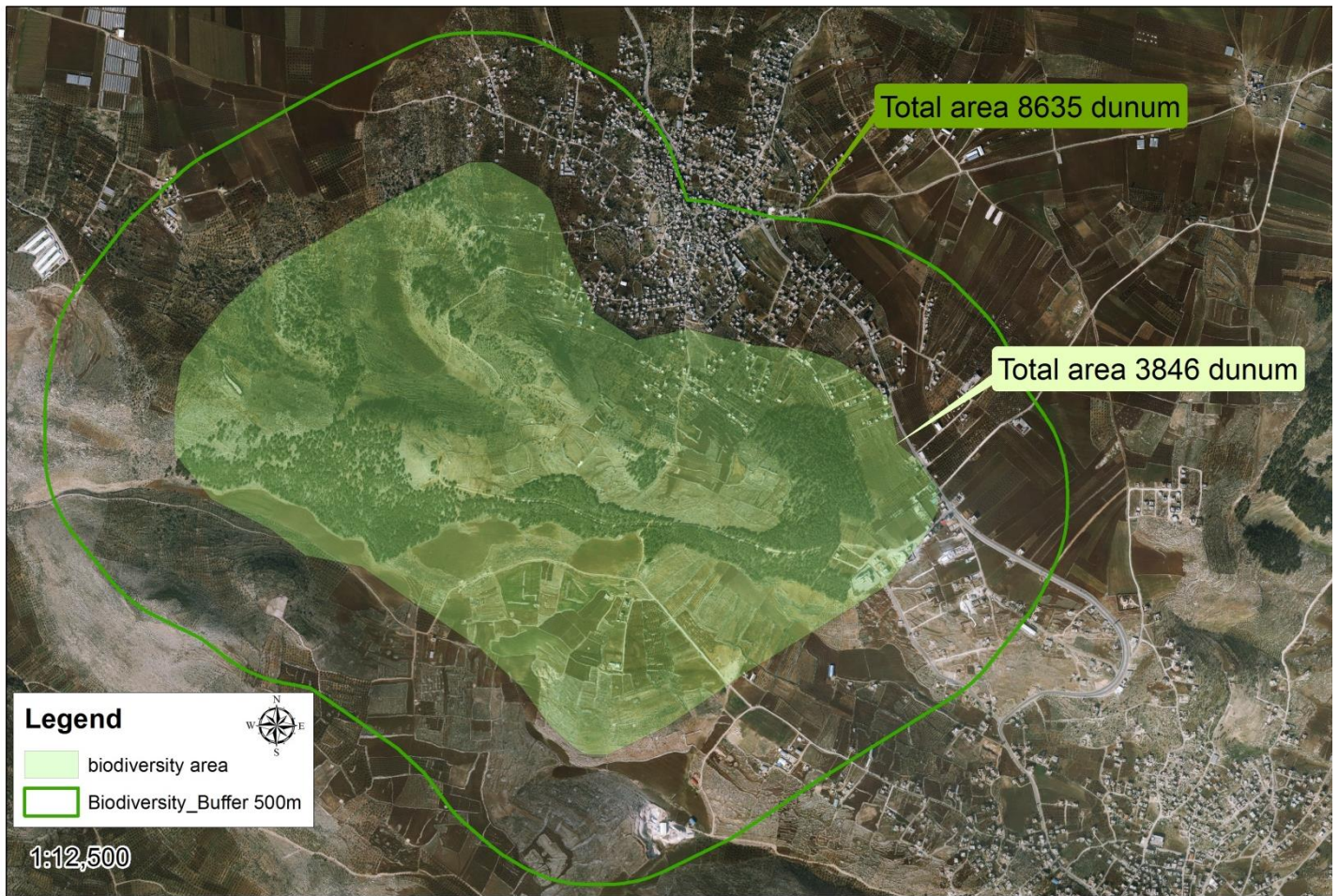
- The boundary

The map below shows the biodiversity area in Tubas-Aqqaba region, this area classified from the Palestinian national spatial protection plan and has an area of 3846 dunom within it 700 dunum of pine forests.



Map21: The first initial boundary



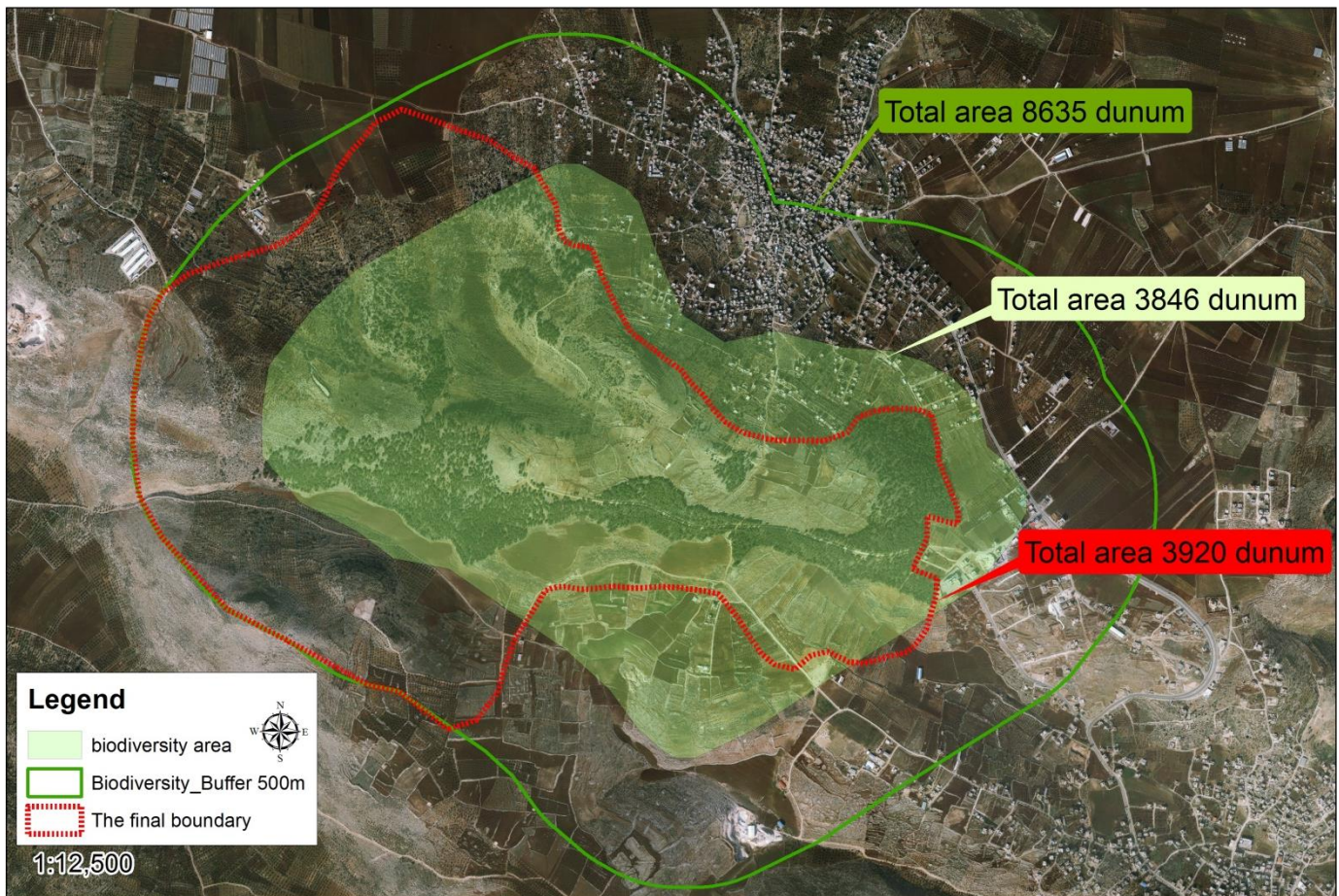


Map22: The second initial boundary

To protect the area, define its final borders and taking into account the existence of construction functions, a buffer zone of 500m around the area has been defined as shown in the map above.



The buffer zone in the previous step area covered a lot of built-up areas in both the city of Tubas and the village of Aqqaba, therefore it was necessary to modify the border and remove built-up areas to get the final borders of the proposed national park in the region, as the map below shows.



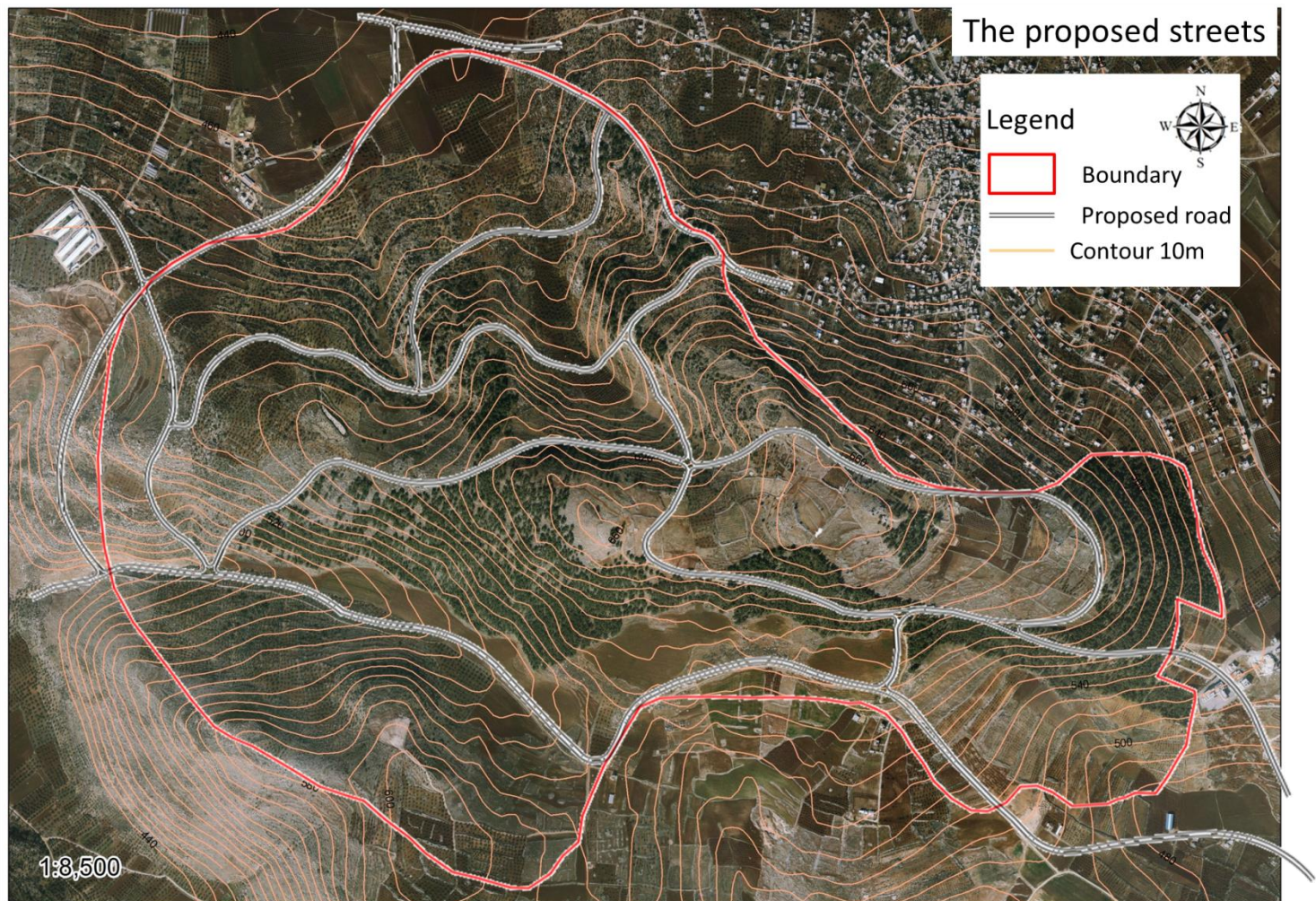
Map23: The final boundary



- road network

Street network is designed to complement the network of streets , which they were used as Street service for the agricultural areas.

The designed roads take into account the compatibility with the contour lines in the region as much as, also the roads do not require to remove anything from the forest trees in the area as much as possible. The width of streets was between 10-12 m.

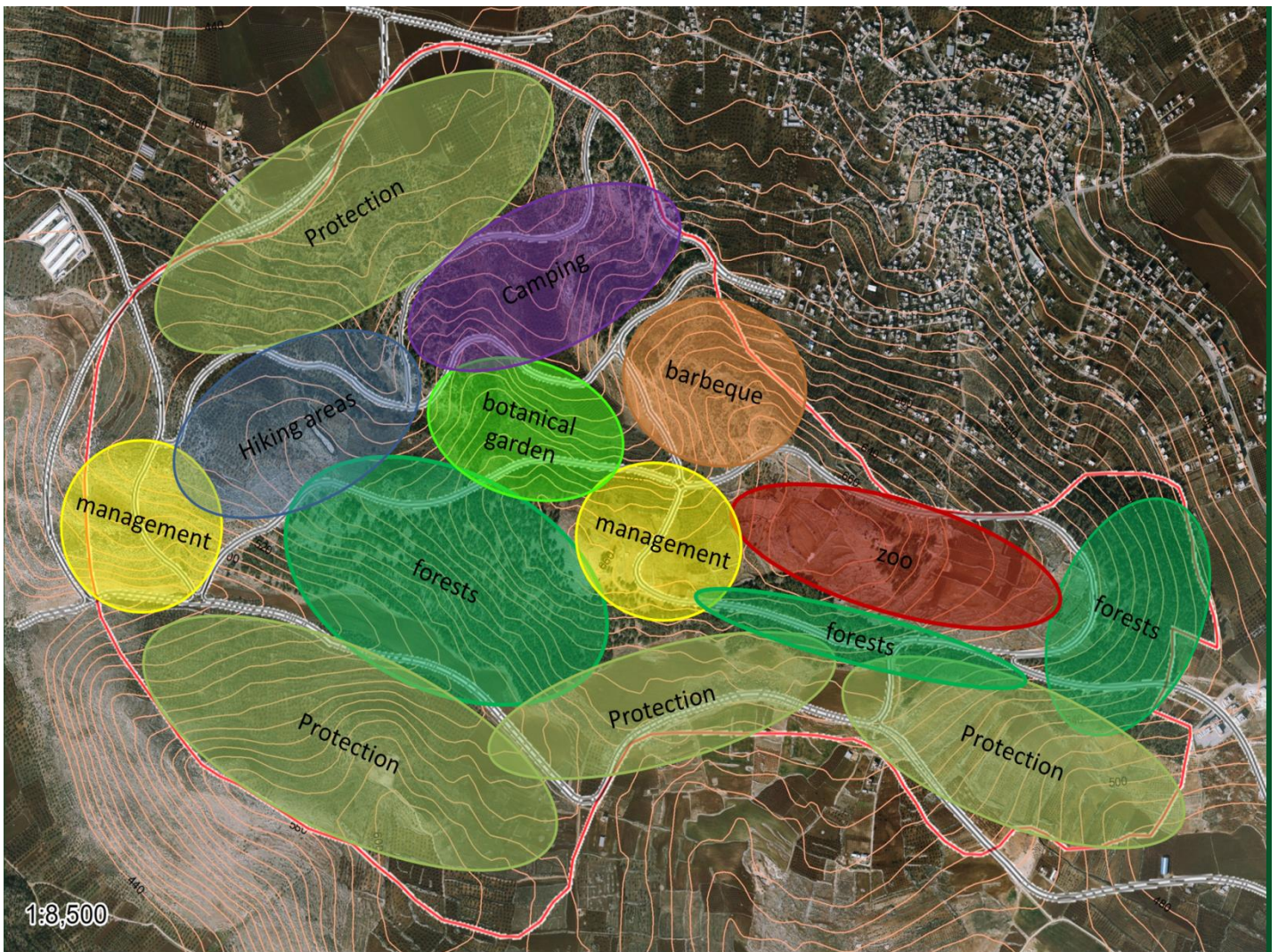


Map24: The proposed road



- functions

The functions are initially distributed as shown in the map below (concept plan)



Map 25: the initial distribution of functions

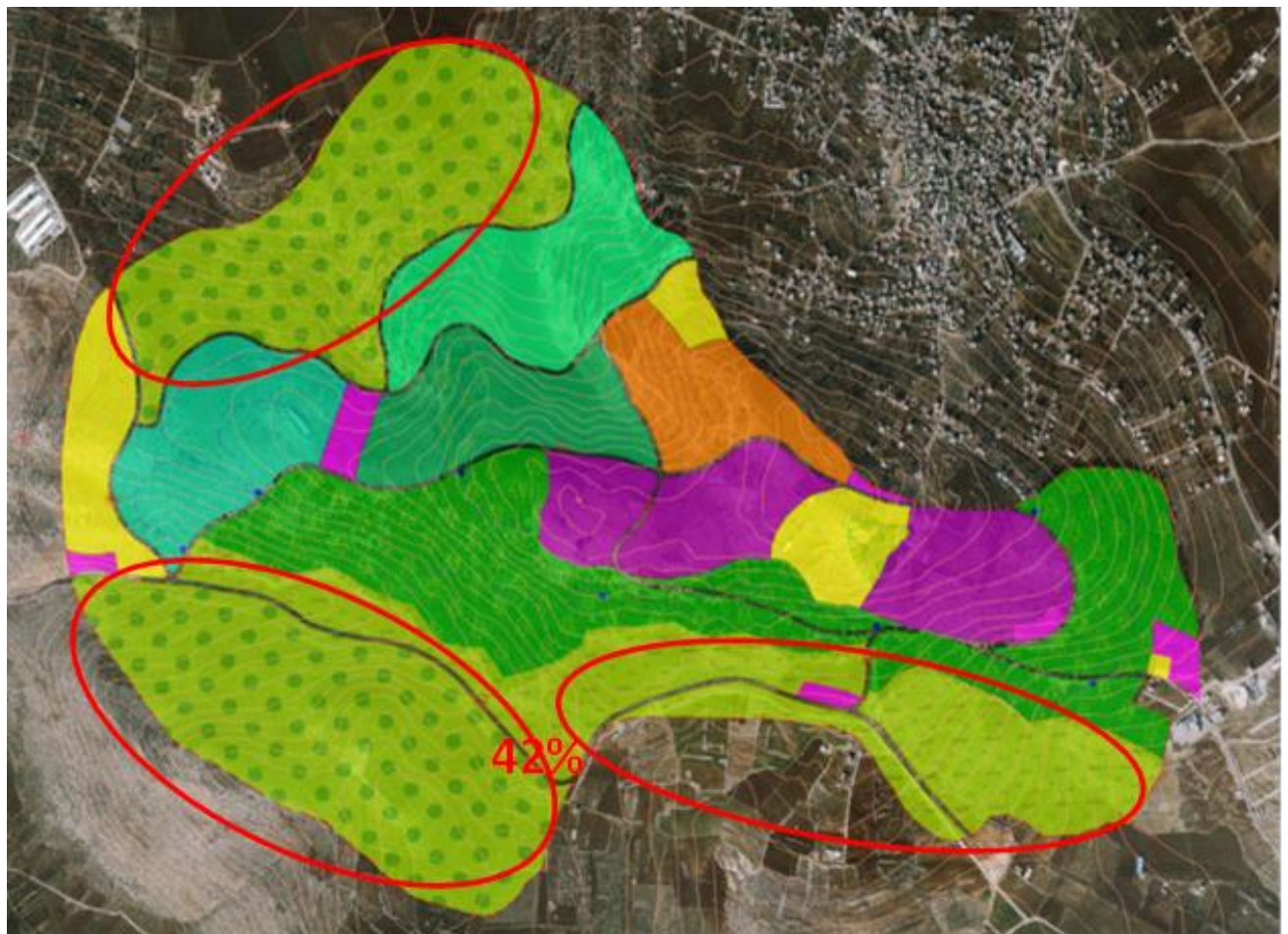


## 2-The final master plan

The area of the final master plan is 3948 dunum, it is a valuable bio diverse land as previously mentioned. The design taken into account the protection of the environmental value of the place as well as the availability of various tourist elements that will make the park an alive tourist destination, whether internal or external tourism.

The functions in the park are classified as shown below:

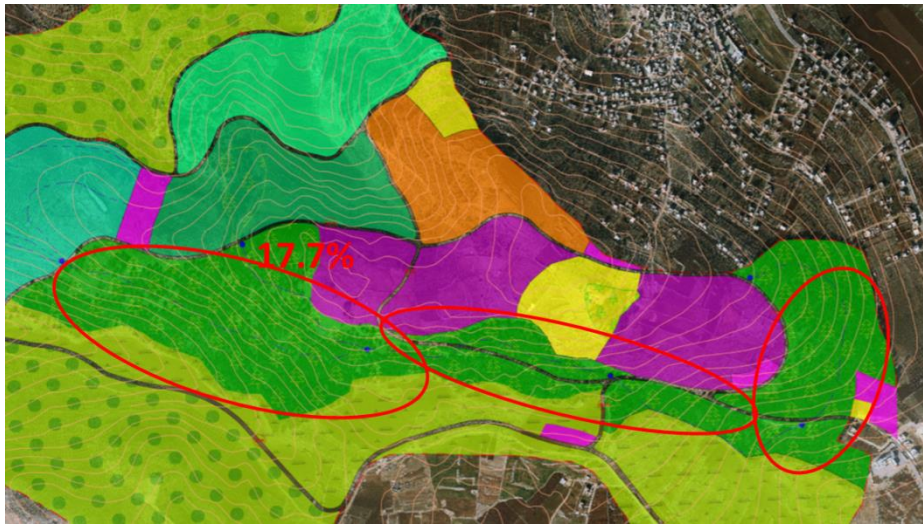
- Protection land zones: lands of high and medium agricultural value, some are covered by olive trees which are around 1120 dunum while the other areas of seasonal agriculture with an area of 535 dunum ,thus the total areas classified as a protection land are 1655 dunum which are about 42% of the total area of the master plan.



Picture18: zones of protection lands



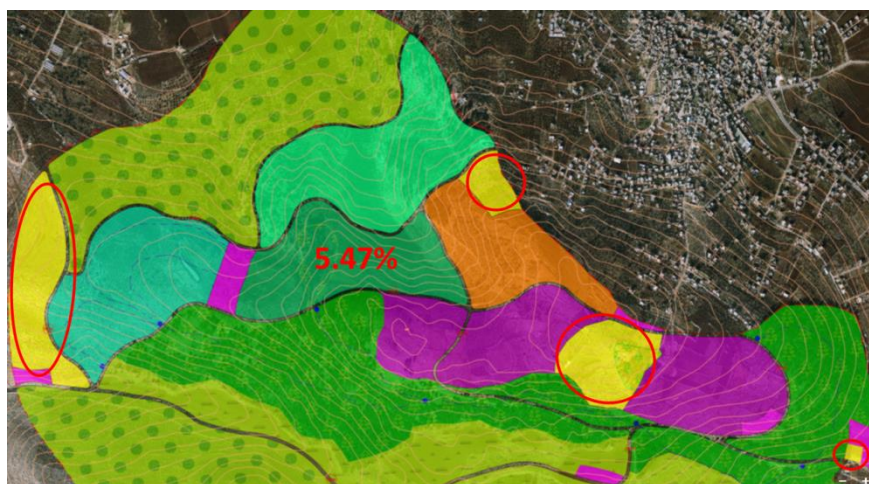
- Recreational zones: forest areas in the region which are about 700 dunum of pine trees covered 17.7% of the total area of the park.



Picture19: zones of recreation

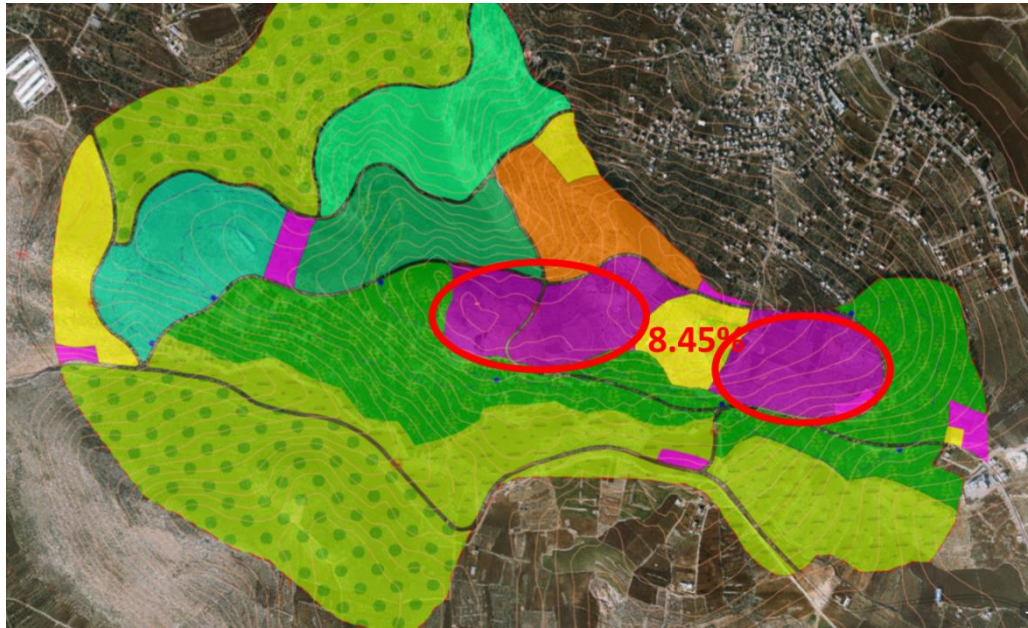
- Services and management zones: these areas distributed, mainly at the entrances of the park in three zones. it contain on an emergency center, Information center and Public baths. There is another service administrative zone in the heart of the park so that allows easy access for users and contains the same services-mentioned above also in addition to tourism services, a restaurant ,hotel , place of worship and a health center.

The zones of services and management have an area of 216 dunum which are 5.47% from the total area of the park.



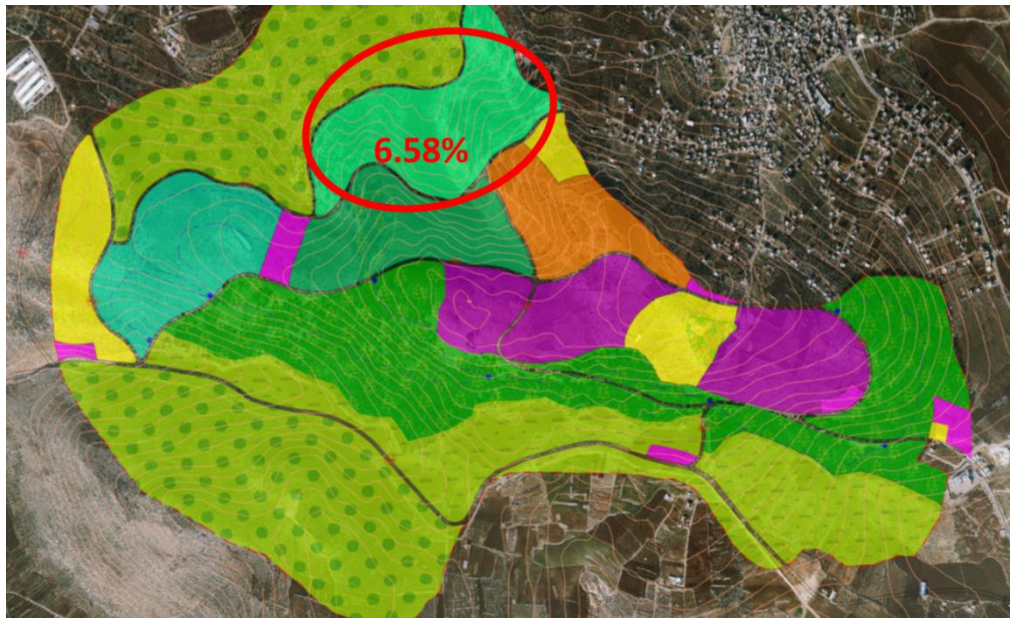
Picture20: zones of Services and management

- Zoo: It is also located in the median area of the park so as to be easily available to all users, it has an area of 334 dunum which is 8.45% of the park.



Picture21: zoo zone

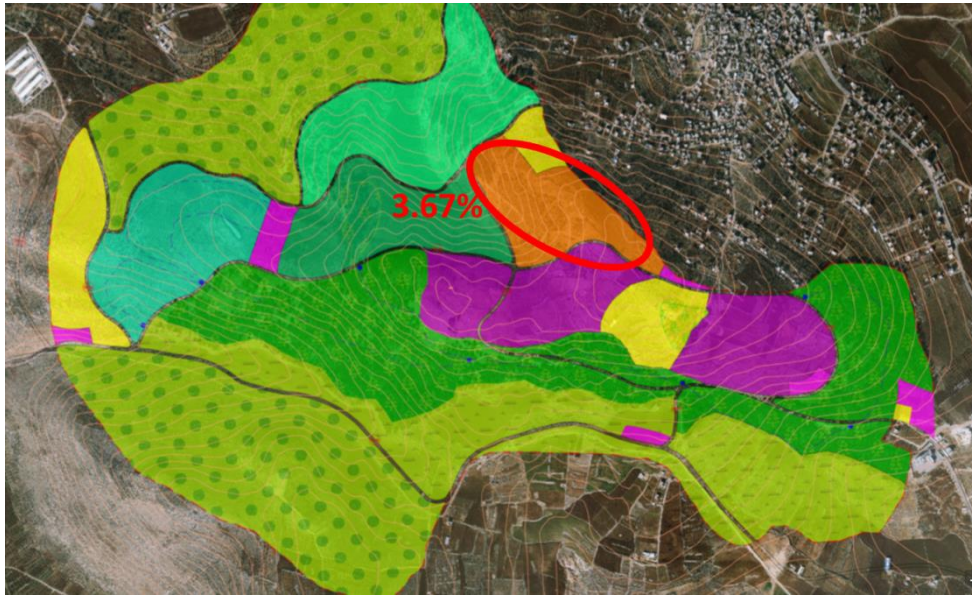
- Camping zone: This takes 260 dunums of the park which is 6.58% of the master plan



Picture22: camping zone

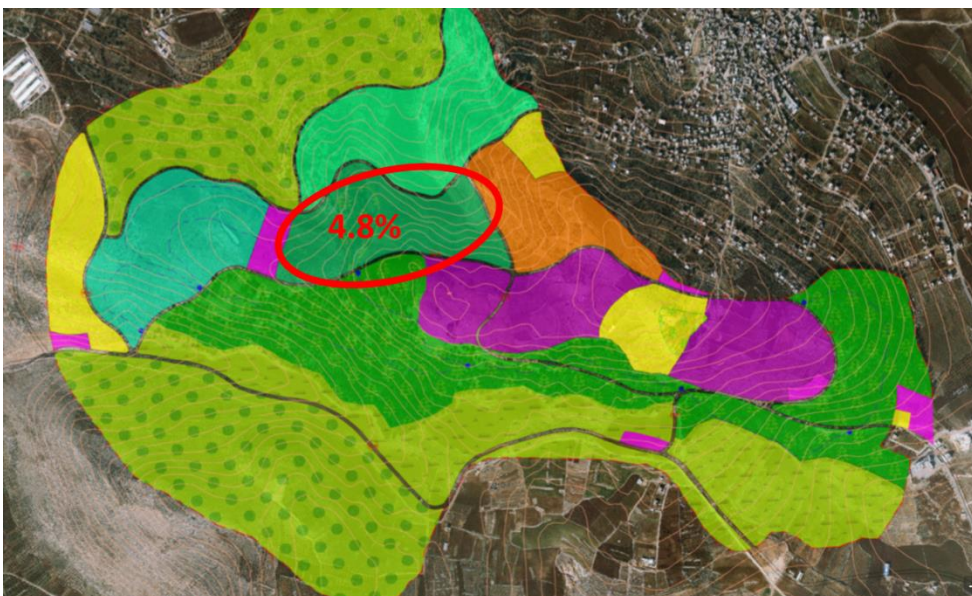


- Barbeque zone: it's area 145 dunum which is 3.67% of the area of the park.



Picture23: zone of barbeque area

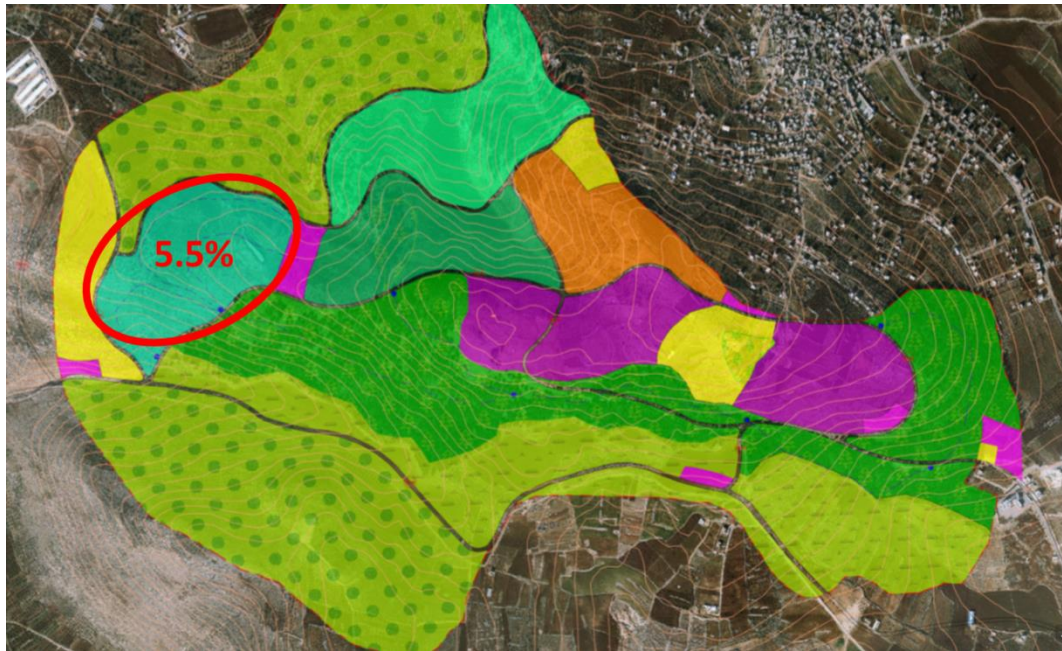
- Botanical Garden: covers an area of 191 dunum and occupied 4.8% from the total area of the park.



Picture24: Botanical Garden zone

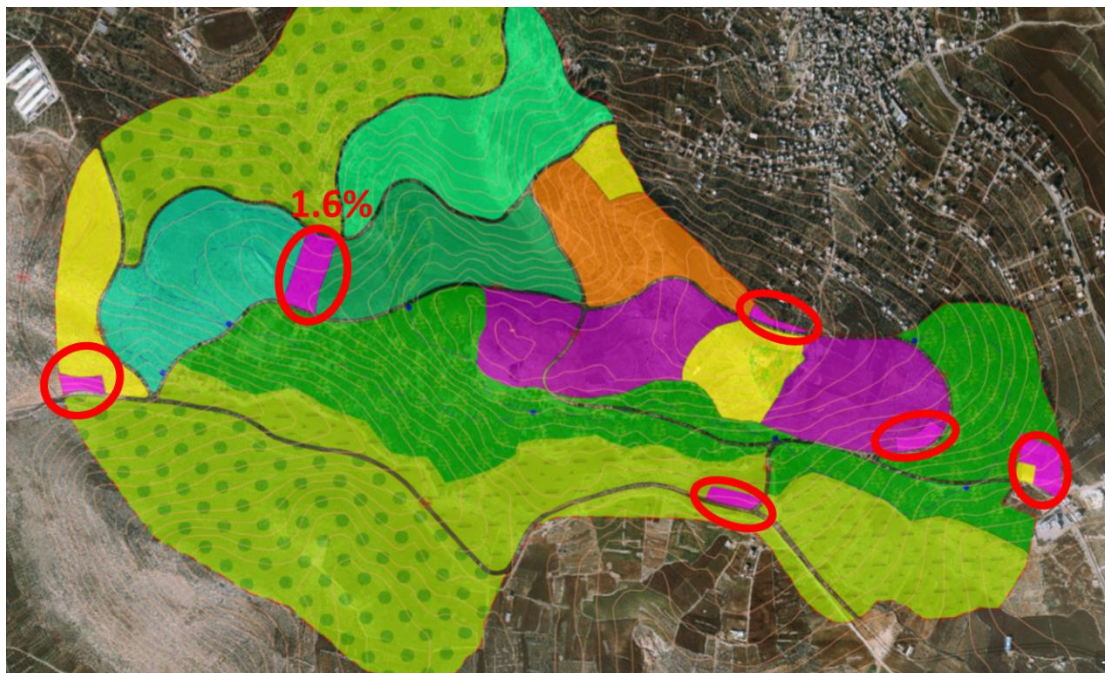


- Hiking area :has an area of 218 covered 5.5% of the area of the master plan



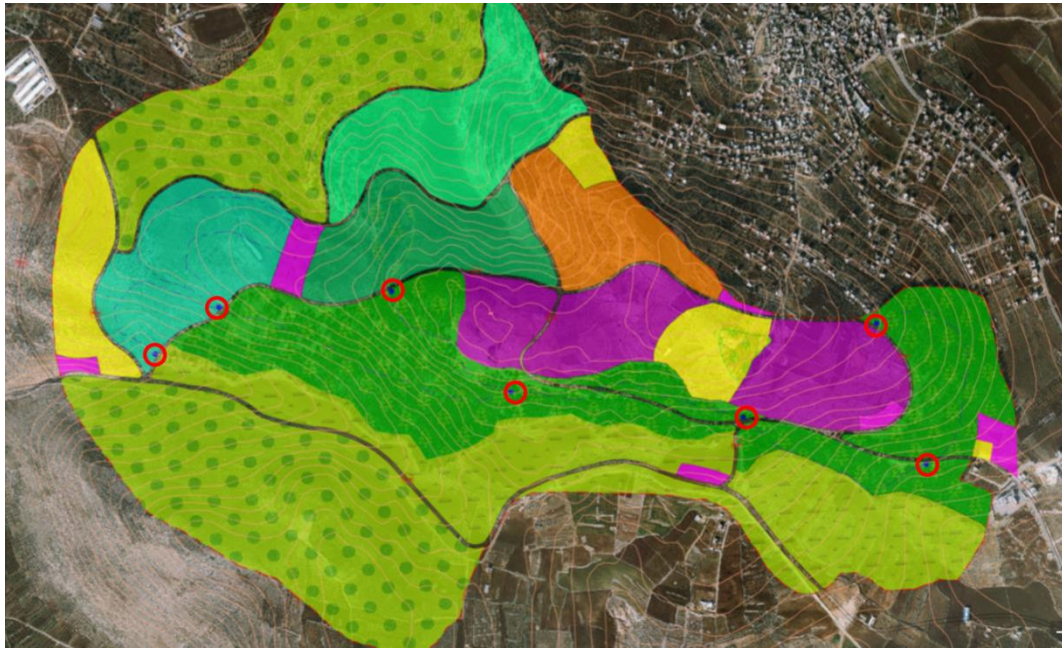
Picture25: hiking area zone

- Parkings: it distributed in the region to serve all over the park. the parkings area covered a 1.6% of the total area which is 65 dunum from the park.



Picture26: parkings areas

- Rests: These points contain benches, public path, pergola and Public telephone connected with the information and emergency centers generally, rests located at the beginning or the end of the paths for pedestrians.



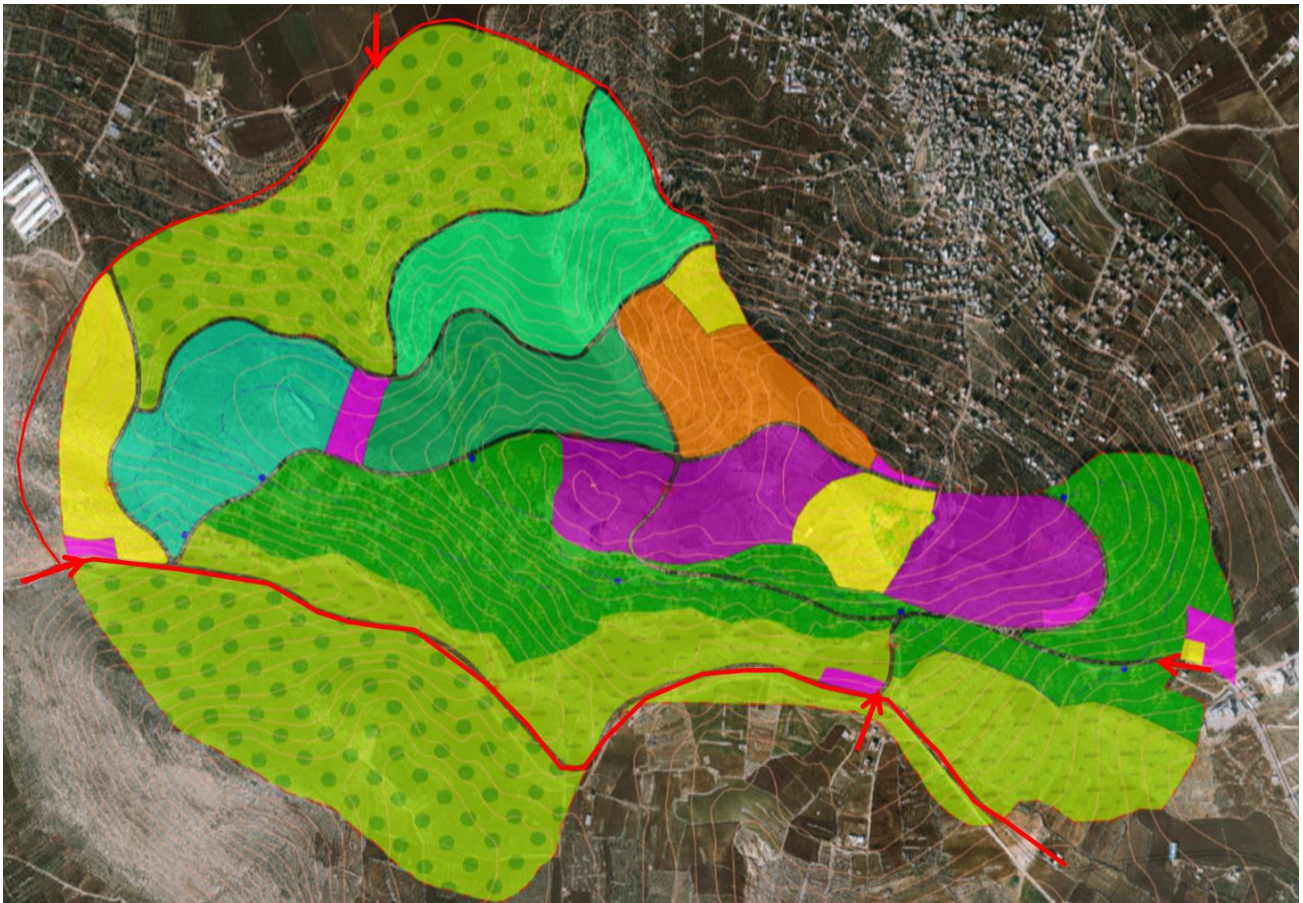
Picture27: rests distribution



Picture28: examples of rests that can be developed in the park



- pedestrian paths: these distributed in hiking and recreation zones and have a length of 5.8 km
- The roads :covered a 4.5% from the area of the park
- The map below shows the main street this street allows the passage of private cars and public tourist buses while the others allow the passage for the private cars only.
- The main entrances to the park as shown in the map take into account the stop of the public buses at the terminal parkings at the entrances of the park then passengers can enjoy the entry into the heart of the park by walking or by using three-wheeler cars or bicycles.



picture29: the main Street and entrances

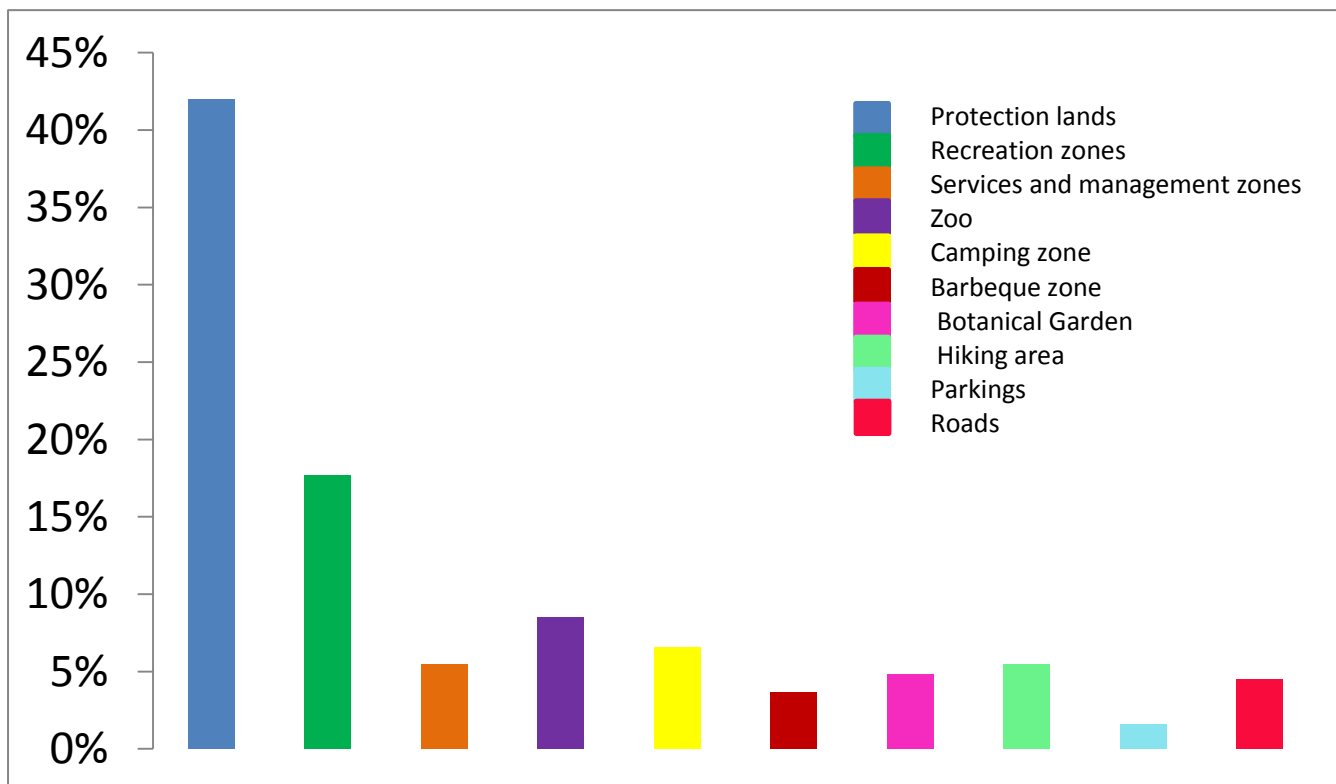


Chart 1: the ratio of functions distributed in the park



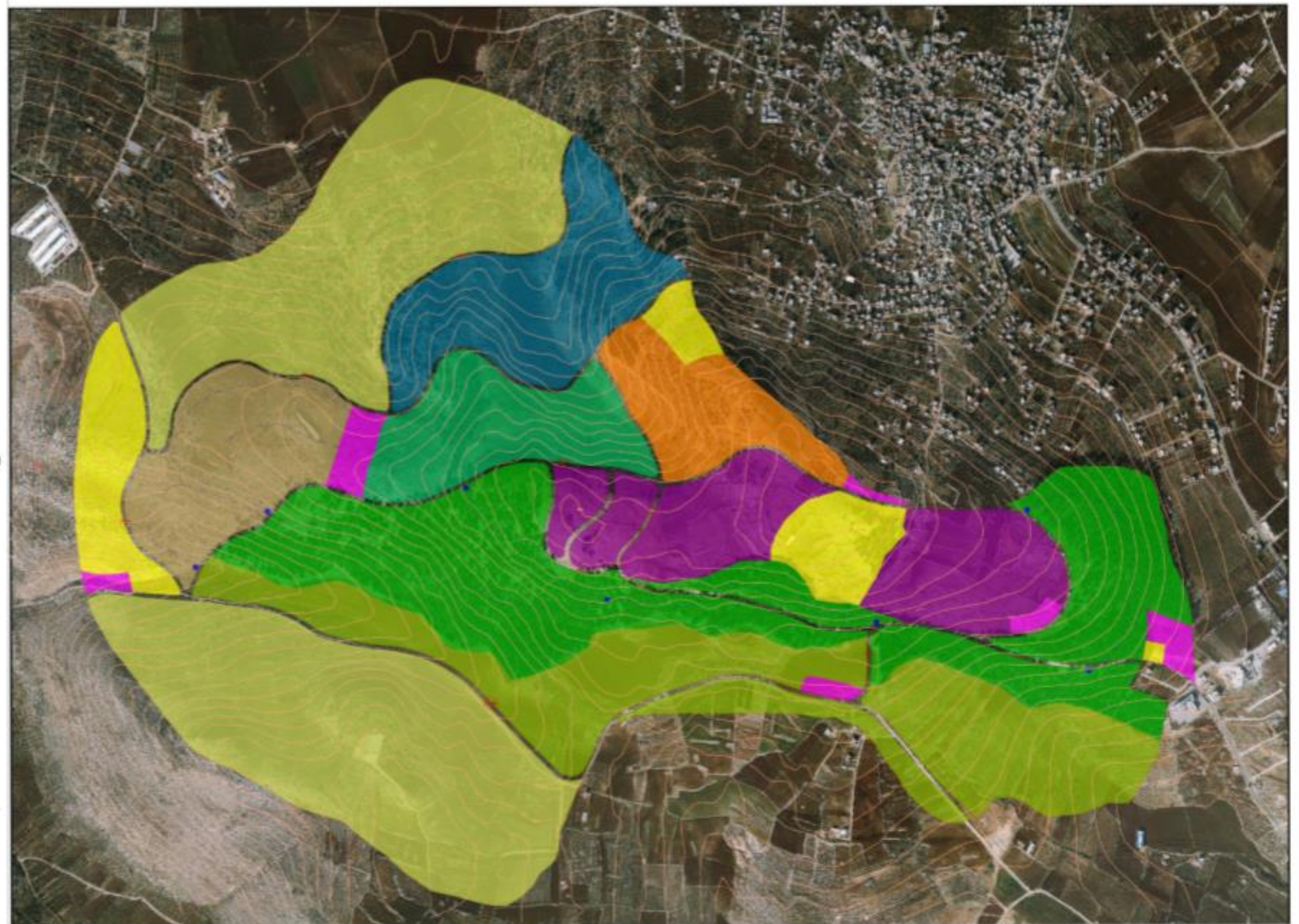
# Master Plan National Park(Tubas-Aqqaba)



scale 1:5000  
Total area = 3948 dunum



Graduation Project  
National Park (Tubas-Aqqaba)  
Done by: Ayat Khalilieh

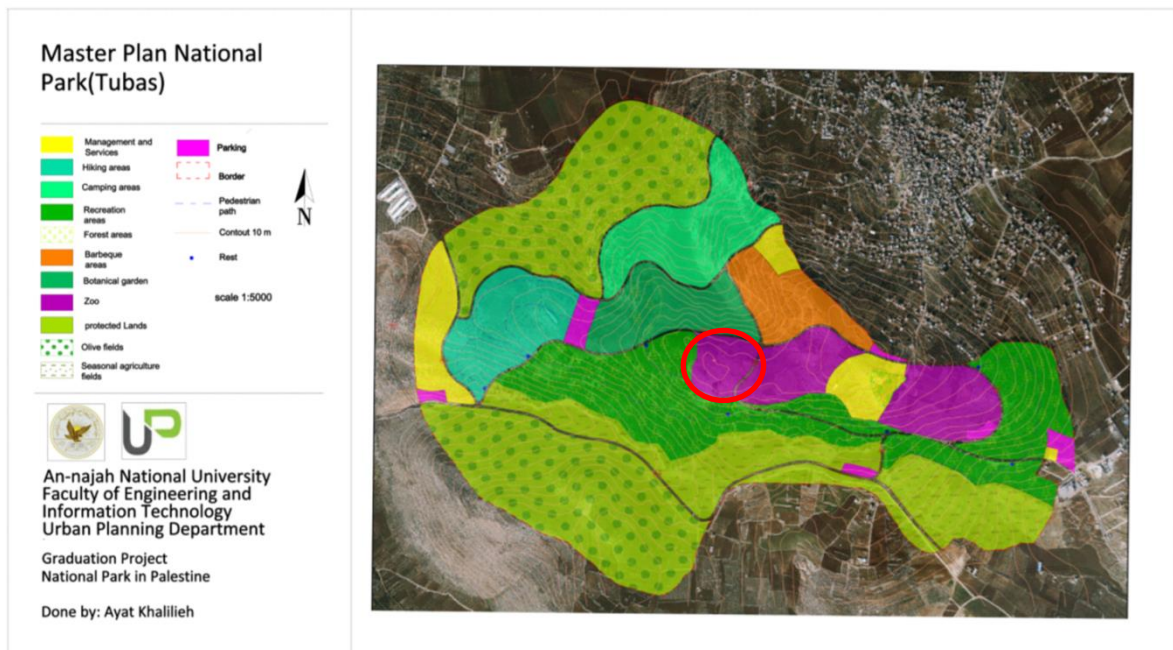


Map26: master plan national park (Tubas

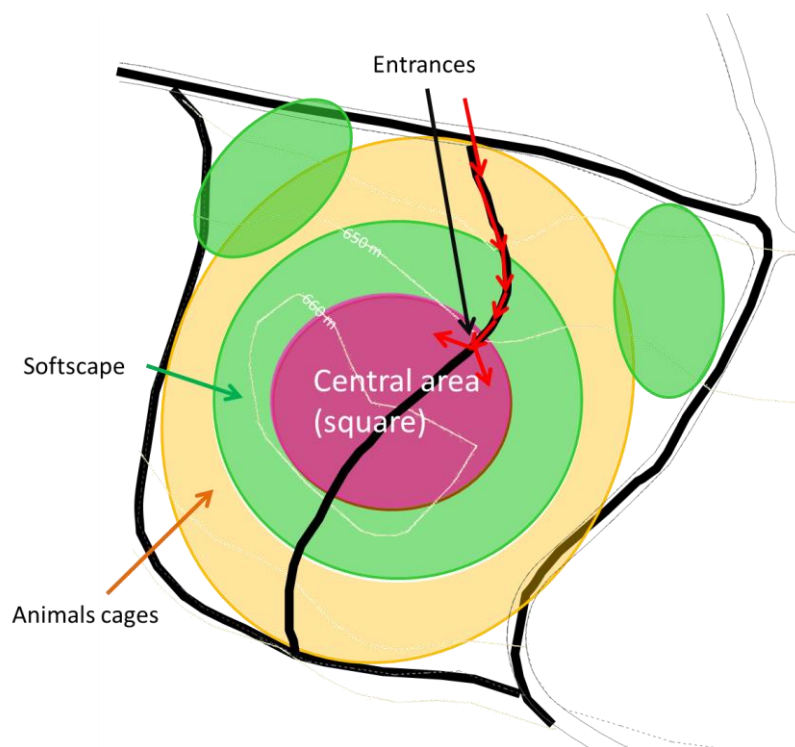


### 3- Detailed plan (zoo)

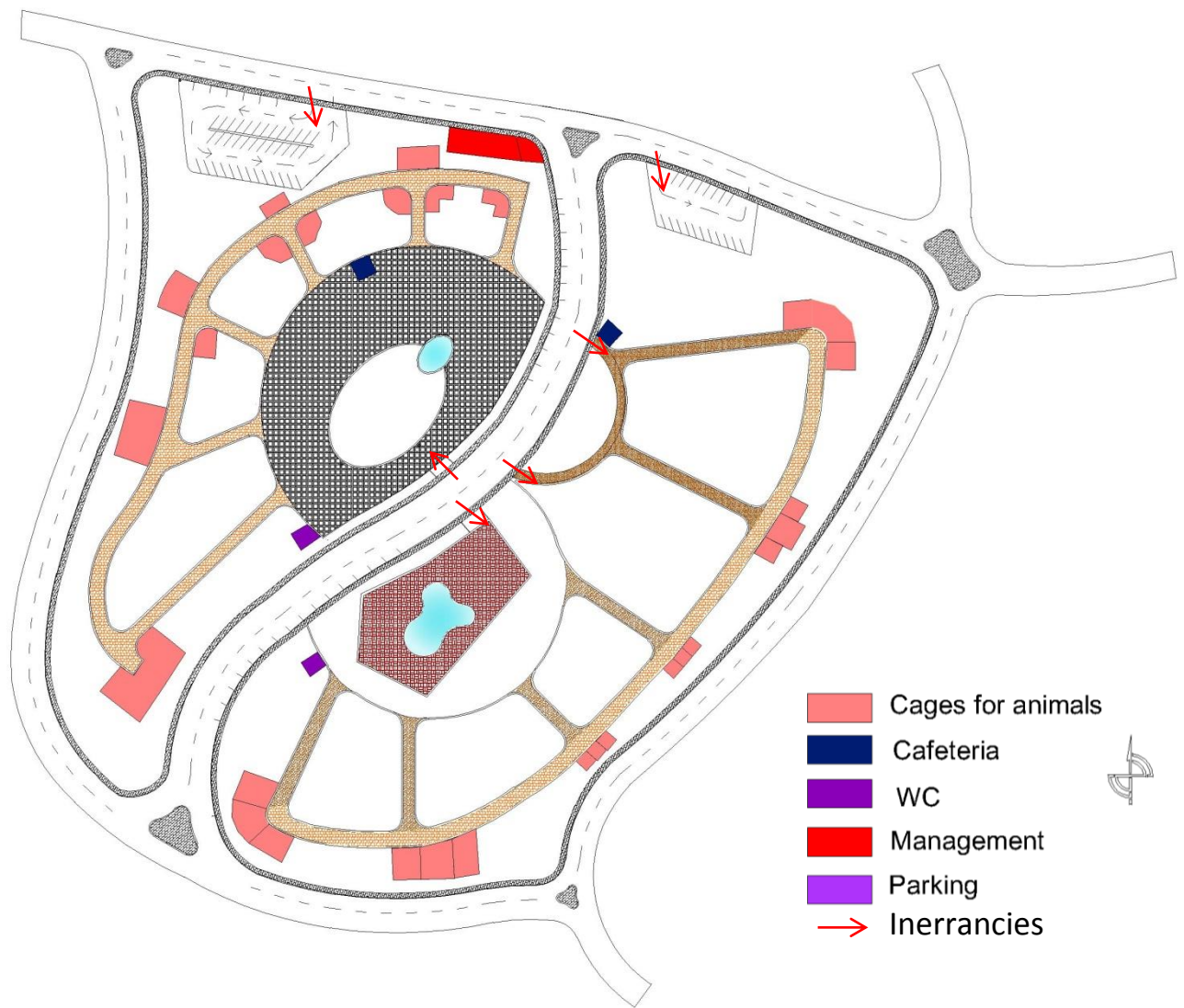
Detailed plan is the western part of the zoo as shown in the map below and has an area of approximately 65 durum.



Map27: the location of the detailed plan



Picture 30: concept plan of the zoo



Picture 31: initial plan (hardscape)

The facilities in the zoo are as follow:

- Animals cages: have an area of 3000 m<sup>2</sup>, the cages are distributed over the circular pedestrian path (see the plan) and take into account the different sizes of animals.
- Water pools: the park contains a pool of water and a fountain in the heart of the park with an area of 448 m<sup>2</sup>
- Parkings: the garden contains two parkings provide a supply of 65 cars which are specialist for private cars for users the use the garden as the only destination in the park ,so that each car given a card and the drivers must deliver the cards to the garden administrative , also the car can't use the card more than once a day. This policy to ensure other cars that visit the whole park from not using zoo parking and use other parkings in the park.
- The garden contains tow cafeterias distributed in the western and eastern sides of the park.
- The Garden contains two units of public toilets distributed in the western and eastern sides of the zoo.
- Management point: this point at the beginning of the zoo and use for guidance ,follow-up ,food stores for animals, maintenance and emergencies.
- Garden containing family sessions in the central squares or among the trees which are provided good of lighting and seats.

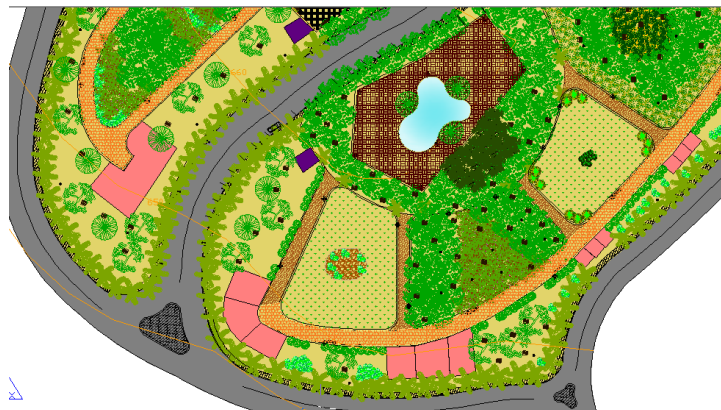
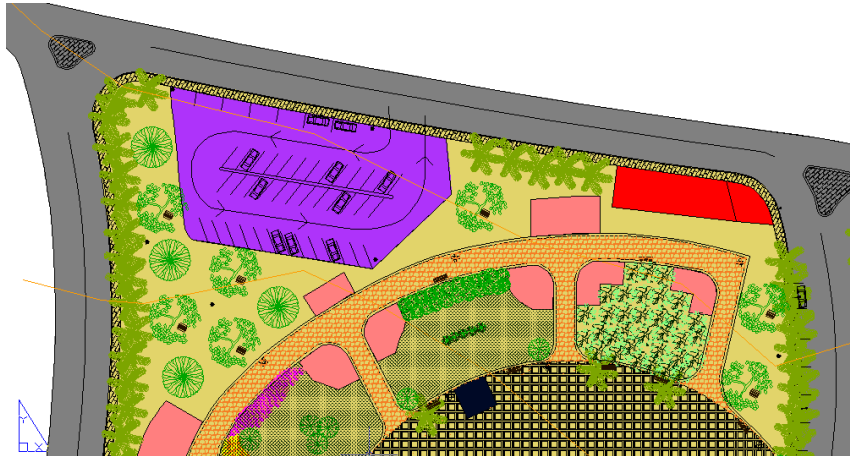
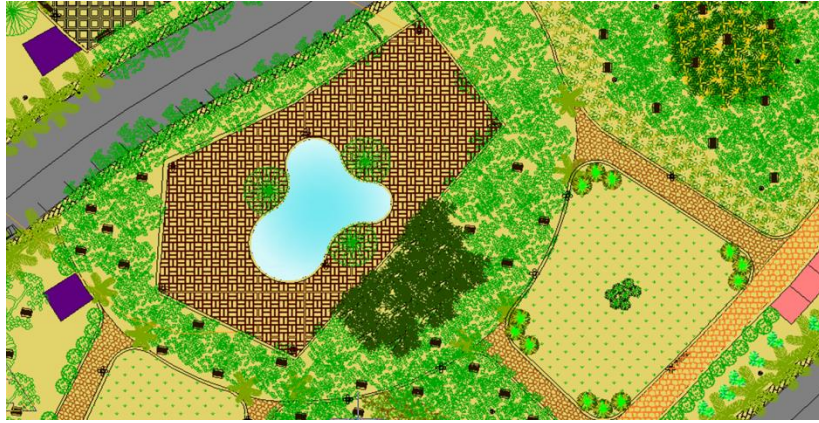


## detailed plan (zoo)



Map28: final detailed plan (zoo)





Picture 32: zoom in some areas and facilities)

### 3.9 impact assessment

The presence of this kind of projects will have an impact in various aspects at different levels and at different levels, the aspects that the national park in tubes will affect are:

- Environmental aspects: the existence of the national park is not limited by protection the environment and, but to improve the situation of it, in terms of planting trees in various uses, as in the zoo, as well as the presence of different types of animals will support the bio-diversity found in the region.
- Economic aspects: the park will be a tourist destination at the national level as a whole, whether by foreign tourists or residents of the West bank , thus improve the Palestinian national economy and promotion of tourism to the Palestinian movement .
- Spatial planning aspects :and that the presence of such a park will limit the expansion of the built-up area in the direction of the park thus preserving the views and landscape in the region also protect the forests areas from damage , which constitute an attractive sight above the city of Tubas
- Social aspects: the presence of the park will be create a human community use nature thus it will develop social relationships and improve health and psychological conditions of the visitors to the park.
- symbolic Aspects: the existence of this kind of parks, supports the idea of maintaining the Palestinian land that is in constant conflict with the Israeli occupation and will encourage the restoration of some of the ancient hamlets in the area around the park thus preserving the Palestinian heritage.

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*All Praise be to  
God that I finished  
this work*