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Natural and cultural heritage integration and geoconservation recommendatory of the Nemrut - Süphan proposed geopark area, Bitlis - Turkey

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Research Article

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Nemrut, Süphan, Geopark, Geo-Conservation, Bitlis, Lake Van.

ABSTRACT

Nemrut-Süphan proposed geopark area located in Eastern Anatolia, Bitlis County, between the Bitlis City Center and Tatvan-Ahlat-Adilcevaz Villages which covers total of 5.300 square km. Two strato - volcano of Turkey, the Nemrut (2.948 meters) and Süphan (4.058 meters) mountains, are located in this area. The southern part of the area consists of metamorphic rocks meters, which are the oldest strata of Turkey. The biggest soda lake of the World, Lake Van, consist the eastern side, of the geopark area. Ophiolitic rocks also exist in this area, representing the remnant of the ancient Neo - Tethys ocean. Total 44 geosite were proposed and determined in the geopark area, most of them are located on five proposed geo - routes. These proposed geosites and several cultural heritage elements are amalgamated within the scope of the geopark management system. This plan also includes the geo - conservation table of these proposed geosites. This area is ready for announcing as a second "International Geopark" (UNESCO) of Turkey in terms of unique geodiversity, cultural heritages, bio - diversity and different kinds of summer and winter outdoor activity potential, in the light of the performed inventory studies.

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1. Introduction

During field considering, the main concept of the geopark was determined by first considering the geodiversity of it. The main concept of Nemrut - Süphan geopark is "volcanic geopark". However, there are also very valuable formations representing magmatic - metamorphic processes and oceanic crust in this geopark which lies on one of the oldest massives of Turkey from south. In northern areas, Nemrut caldera is obsreved, which is the best preserved calderas of Turkey and still holds the status of "National Park" and products of volcanic flow - eruption - pyroclastic fall deposits around it (Figure 1). The youngest lava flows in Turkey are also within the same volcanic system. Further to the north, Turkey's third highest peak (4.058 m) is located as the Süphan Stratovolcano. It also has characteristic recent lake sedimentary formations in its northern areas. The Lake Van, which limits the geopark from east, is a "geological heritage" subject on its own, with recent stramatolite formations at the bottom.

In addition to this rich geodiversity, the region has a very rich accumulation in terms of cultural assets (archeology, ethnography, gastronomy, history) and the inventory studies carried out by different people and institutions over time on these cultural values have been combined in a suitable format and processed on the geopark map. The geopark area also has a wide

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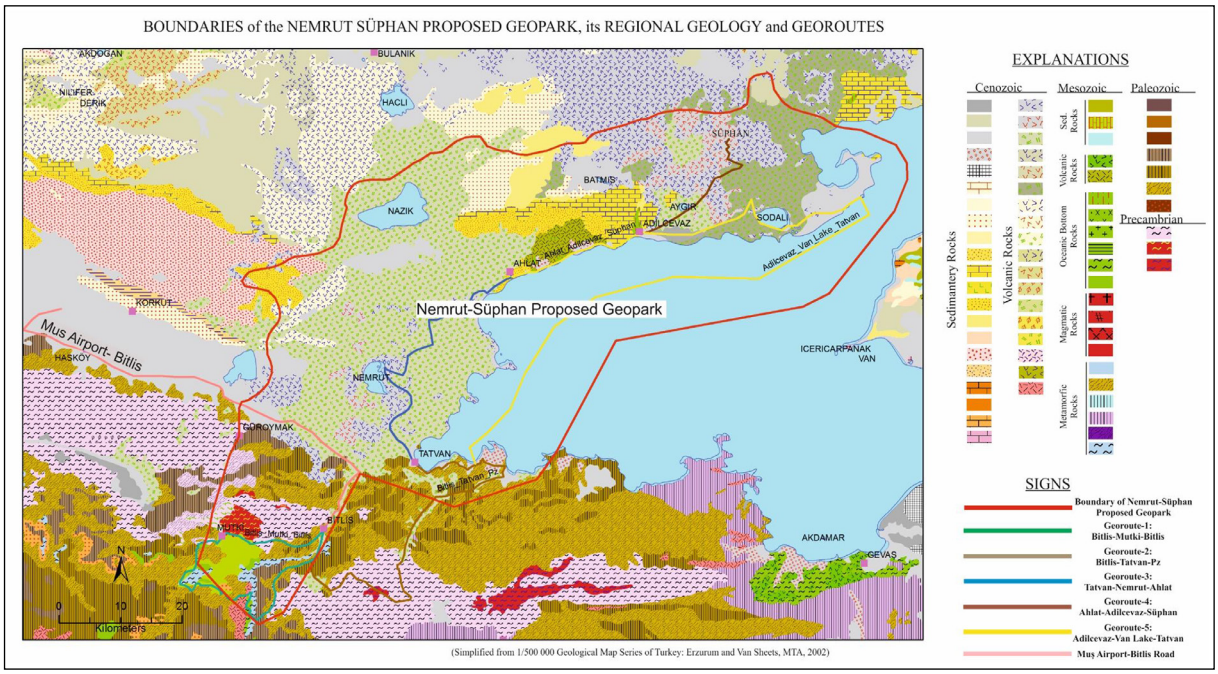


Figure 1- Geological map of Nemrut-Süphan proposed geopark area with a scale of 1: 500.000, boundaries and georoutes (modified from MTA, 2002).

variety of opportunities in terms of "Outdoor Sports" and within the scope of this study, an "inventory study" on outdoor sports has been carried out and processed on the geopark map.

Although there are international examples for the operation / management model of the geopark, it is not easy to develop a consistent and continuous model in this regard, given the unique conditions of the region. However, when the above - mentioned extraordinary possibilities come together, a rare "UNESCO Geopark" candidate comes out. With this work, this area has been re - projected as a geopark for socio - economic purposes, defined and programmed with all the necessary components in the context of being an international geopark.

1.1. Cultural Geology Terms Used in the Article

Geosite: In its broadest concept, it defines rock, mineral, fossil assemblage, structure, succession, landform or piece of land that expresses any current or old geological process, event or feature (Jemirko).

Jeopark: It is the area where the same or different types of geosites are found collectively and not smaller than the pedestrian walking distance (Jemirko).

Geoturism: It is the tourism activities whose subject is geological assets. All of the periodic outdoor activities and nature promotion activities organized in accordance with scientific, social and economic purposes are included in this wide group.

Geological Heritage: It is the geosite that has significant scientific or visual value which is threatened by natural or man - made extinction (Jemirko).

Georoof (Roof List): It is the type of grouping or listing for geosite or geological heritage separately, according to a specific feature (Jemirko).

Geoinventory: It is the total representation of geosite or geological heritage without any discrimination (Jemirko).

Geoprotection: It is a social concept related to the protection of natural resources of the Earth (Henriques et al., 2011). Beyond this general definition, the aforementioned conservation concept focuses especially on the protection of geosites that have; 1) high scientific value, 2) educational value and 3) touristic and cultural values. It is evaluated under three headings as; 1) Basic Geoprotection, 2) Applied Geoprotection and 3) Technical applications in geoprotection.

Georoute: It is a travel route that passes through locations that carries the value of being a geosite on any piece of land or in a geopark and serves a specific scientific / educational / touristic purpose, and whose starting and ending points are determined.

Jeotravers: Georoute arranged according to a geological cross section that clearly reflects a certain period of the Earth's formation.

Geotravel: It is an educational / touristic "nature walk" aiming to introduce any geological feature of the world. This trekking can be in the form of normal trekking and can also be carried out by tour skiing, bicycle, canoe, paragliding etc.

Cultural Heritage: All kinds of archaeological and ethnographic values created by human.

Natural Heritage: Any kind of geological formation that is not declared as "Geological Heritage" or defined and classified as "geosite" in all aspects, but located in and around a geopark and expresses a value in itself. It is a social definition rather than a scientific one. Areas such as lakes, waterfalls, cliffs, fault mirrors, wetlands / reeds, caves, private living / breeding areas are within this scope. Such areas can be registered as geosite or geological heritage through scientific studies to be conducted.

2. Geographical Location of the Proposed Geopark Area

Nemrut - Süphan proposed geopark area is located in the province of Bitlis, in east of Turkey. The geopark area, which covers a total area of 5300 km^2, consists of Tatvan, Ahlat, Adilcevaz, Güroymak, Mutki and Hizan districts. The study area has been surrounded by Lake Van in the east and high mountainous areas in the west. Süphan Mountain (4.058 m), Nemrut Mountain (2.916 m), Kirkor Mountain (2.428 m) Kırmızıtaş Hill (2.607 m) and Yıldız Mountains (3.002 m) are important heights of the geopark. Bitlis river, Kocaçay and Karasu river are among the important rivers. There are two airports for transportation to Nemrut - Süphan proposed geopark. One of them is the Muş Airport, which is 93 kilometers away from the Nemrut Kaldera, the geopark center, and the other is the Ferit Melen (Van) Airport, which is 154 kilometers away from the Nemrut Kaldera. The Lake Van, which is a soda lake that covers more than half of the geopark border, has an area of 2.755 km^2 and a max. depth of 490 m. It is also possible to reach the geopark by a nostalgic train journey with the Van Lake Express, which travels between İstanbul and Van. This train boards on the ferry in Tatvan, passes the Lake and reaches Van. In addition, daily shuttle bus services to the area of the geopark are held all over Turkey. Access to all geosites located on the determined georoutes is very easy.

3. Geology and Geological Evolution of the Proposed Geopark Area and its Vicinity

The southern part of the proposed geopark area consists of old metamorphic rocks belonging probably to Pan - African basement and overlying autochthonous rocks, which are defined as the "Bitlis Massif" in the literature and located on the collision zone of the Laurasia and Gondwana continents. This region has attracted attention for various reasons, but mostly because it remains on the Bitlis - Zağros Suture Zone, in the continent - continent collision zone mentioned above, and the old rocks of the massif have been the subject of many scientific studies. Some of these pioneering studies are referred to as Arni (1940), Tolun (1953; 1960), Kranck (1954; 1957), Altınlı (1963; 1966*a*, 1966*b*), Ketin (1966). With the spread of the concept of plate tectonics, especially the studies aimed at understanding the tectonic evolution of the region have come to the fore, some of them are; Dewey (1973), Boray (1973), Özkaya (1974; 1975; 1978*a, b;* 1982*a, b, c*). In Turkey, the hydrocarbon and mineral explorations in Anatolia have been condensed in 60's and 70's especially in SE Anatolia. The stratigraphical and tectonic studies carried out within this context that come to mind first are Kellog (1960), Ibbotson (1969), Sungurlu (1974), Açıkbaş and Baştuğ (1975), Yılmaz (1978), Açıkbaş (1979), Perinçek (1980) and Helvacı (1983a). Yılmaz (1971), Baştuğ (1976), Yılmaz et al. (1981), Tolluoğlu and Erkan (1982), Göncüoğlu and Turhan (1983a, b), Helvacı (1983b), Yazgan (1983) and Yazgan and Chessex (1991). can be given as examples to comprehensive and regional geology, magmatism / metamorphism studies. Especially after the 2000s, the scientific studies focused on volcanism and tectonic evolution in the region has gained importance. Among them, Elmas and Yılmaz (2003), Keskin (2003; 2007), Yılmaz (2005), Karaoğlu et al. (2005), Özdemir et al. (2006), Lebedev et al. (2010), Özdemir (2011), Oberhansli et al. (2011), Özdemir et al. (2011), Keskin et al. (2012), Özdemir and Güleç

(2014), Schmincke et al. (2014), Hisarlı et al. (2015), Özdemir et al. (2016) and Karaoğlu and Kılıç (2017) have very comprehensive studies. Very detailed geological maps with a scale of 1 / 100.000 in the region have been systematically prepared by MTA for many years. The exploratory studies, which are at the closest disclosure to the regions worked within the scope of this publication, were carried out by Akay et al. (1988), Göncüoğlu and Turhan (1992) and Çağlayan and Şengün (2002). In this study, the last study mentioned in the definition of the tectonostratigraphic relations of the core and cover rocks of the Bitlis Massif has been accepted as the basis.

The age of metamorphism of amphibolite, biotitic gneiss, muscovitic gneiss and mica schists defined as "Yolcular Group" in the core of the massif is 570 million years (Yılmaz et al., 1971; Helvacı and Griffin, 1983). These rocks were cut by Cadomian metagranites (540 my) (Ustaömer et al., 2009). These metamorphic core rocks are covered transgressively by metaclastic rocks belonging to Paleozoic Bitlis Group and the rocks belonging to carbonate rocks assemblage intercalating with volcanics of Permo - Mesozoic Çadırdağı group (Çağlayan and Şengün, 2002). The Bitlis Group consists of brown, greenish brown, dirty white quartzite, quartz schist, mica schist, phyllite and slate assemblages occassionally with marble interlayers (Şengün, 1984; Şengün et al., 1991). The carbonate rock assemblage with volcanic intercalations that transgressively come in northward direction and cover the Yolcular Group, which consist of the core rocks and Bitlis Group metaclastics, were distinguished as the Çadırdağ Group by Boray (1973). This group from bottom to top consists of possibly Permian Gelintaş formation, Nallıkaya formation formed by coarse foliated metabasite, Upper Permian Kerzevil formation, Lower - Middle (?) Triassic Benekli formation, Upper Triassic (?) - Jurassic - Lower Cretaceous Bacavan formation that has the characteristics of comprehensive series, Lahtandere formation alternating with limestone and volcanite, Sit formation with pillow lava structure and Campanian Tilkikaya formation (Çağlayan and Şengün, 2002).

All these metamorphic series were overlain by samples of which are commonly found in southern sections of Mutki county in south that represent the closure of the ocean in Upper Cretaceous (Late Campanian - Early Maastrichtian) (southern branch of Neotethys) and by ultrabasic and epi - ophiolitic successions which are widely found between Ahlat and Adilcevaz districts in the north. The regional compressional regime that had started in the Upper Cretaceous has continued until today and still continues (Elmas and Yılmaz, 2003). The current trace of the ocean, which started to close in the Upper Cretaceous, is called the "Bitlis - Zağros Suture Zone", and this zone starts roughly from east of Adana Province and leaves our country from east of Hakkari drawing a convex arc. Then it reaches the SE Iran and traced until the northern end of the Gulf of Oman (Figure 2). Continent - continent collision has started along the Bitlis Suture Belt since the Middle Miocene. The collision caused the rise of the East Anatolian region continuously, which still continues today. This region, which is 220 km long and 1.600 - 2.000 m high, is called the "Eastern Anatolian High Plateau" (Figure 3). Due to the tectonic regime that developed after the collision, it is known that the volcanic material emerged from the N - S oriented opening cracks in the Eastern Anatolia and formed recent volcanic rocks (Yılmaz et al., 1987). These volcanic centers in the Eastern Anatolia are mainly Nemrut (2.916 m), Süphan (4.058 m), Tendürek (3.584 m) and Ağrı Mountains (5.137 m) (Figure 4).

The Nemrut and Süphan stratovolcanoes, from mentioned volcanic centers above, remain within the proposed geopark area (Özdemir et al., 2006). In the north of Nemrut Volcano, which is considered active in the volcanic literature, the lava outflow occurred in AD 1443 from the crack opened in the area known today as Kantaşı (Figure 4) (Karaoğlu et al., 2005). The traces of this outflow are clearly seen when the parasite cone is climbed where this volcanic exit begins. In addition, hot water and steam outlets continue in and around the caldera today. The characteristic lava and eruption products emitted by these volcanic centers were found on the georoutes and proposed as geosites.

Carbonate rocks, which remain in the proposed geopark area, is the Adilcevaz Limestone rich in carbonate rocks and characteristic life forms. This sequence, which widely outcrops in the western and northern areas of Adilcevaz district (Figure 1), is an occassionally massive bedded carbonate sequence deposited in a shallow marine environment and contains bioherm / biostrome packs and contains abundant coral fossils (Yeşilova and Yakupoğlu, 2007).

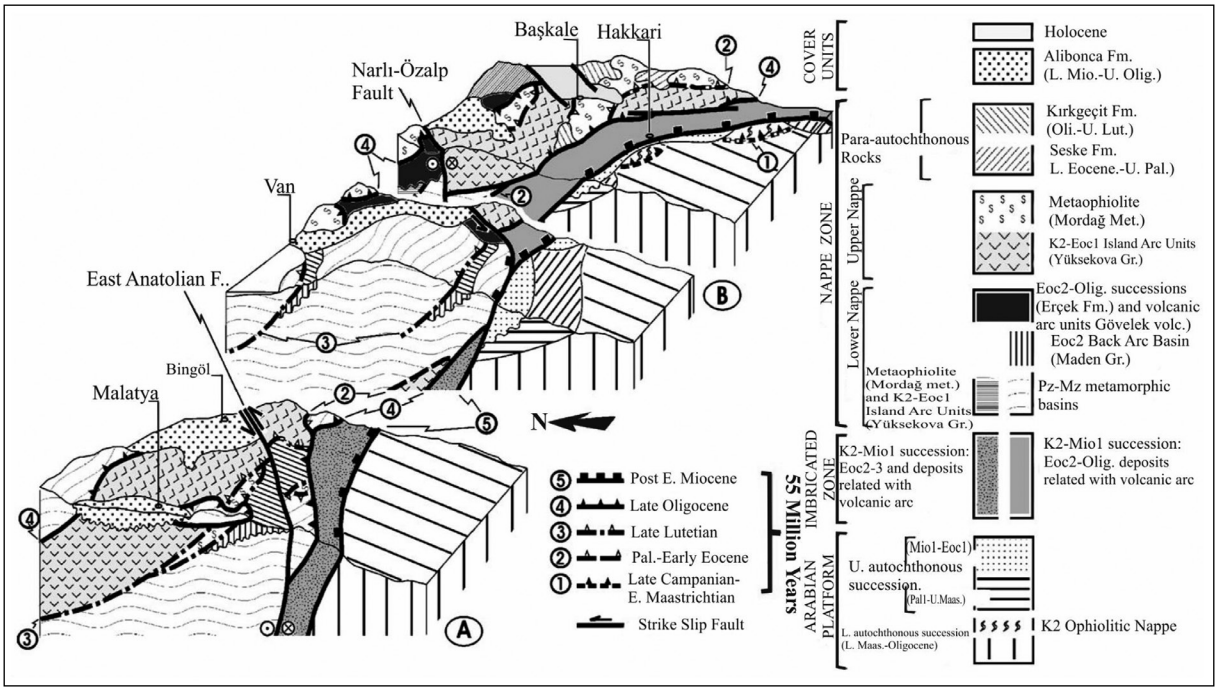


Figure 2- Schematic section showing the regional geotectonic environments, their products and general structural elements (modified from Elmas and Yılmaz, 2003).

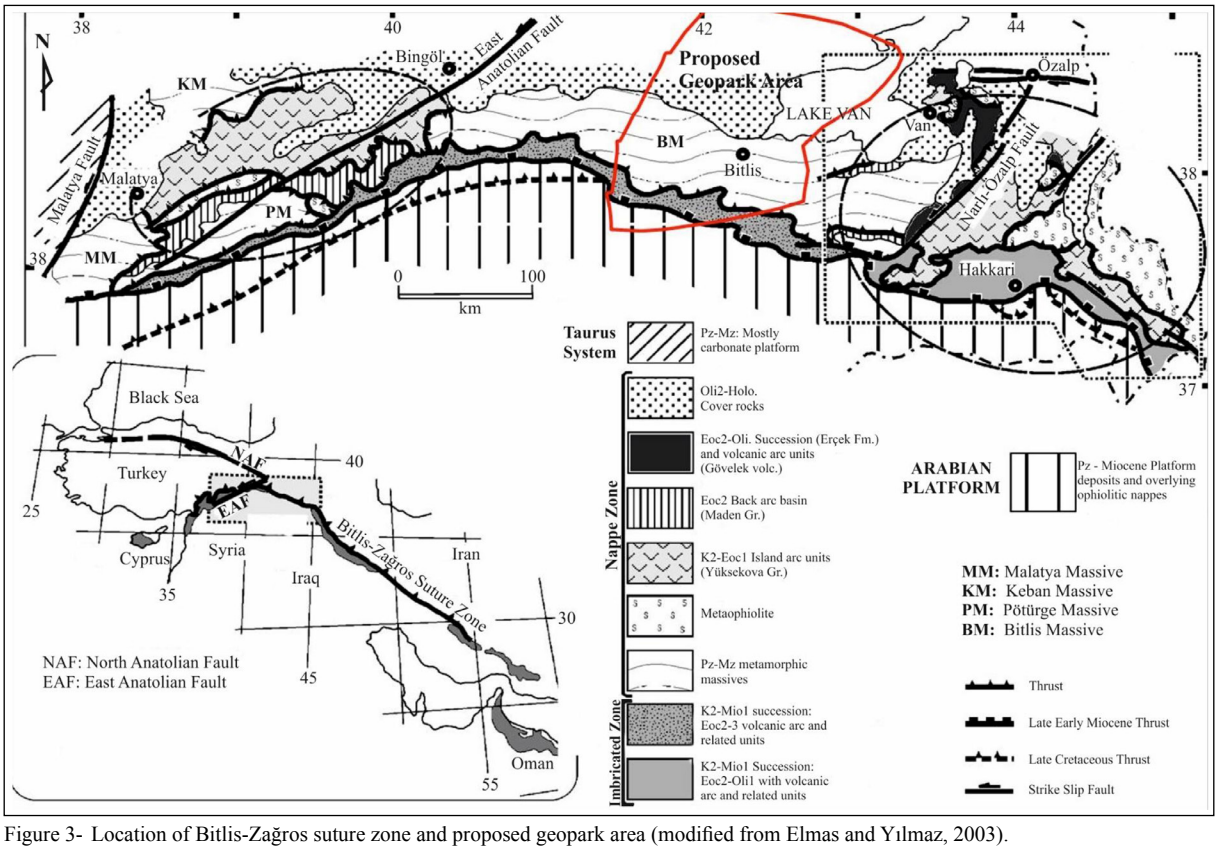


Figure 3- Location of Bitlis-Zağros suture zone and proposed geopark area (modified from Elmas and Yılmaz, 2003).

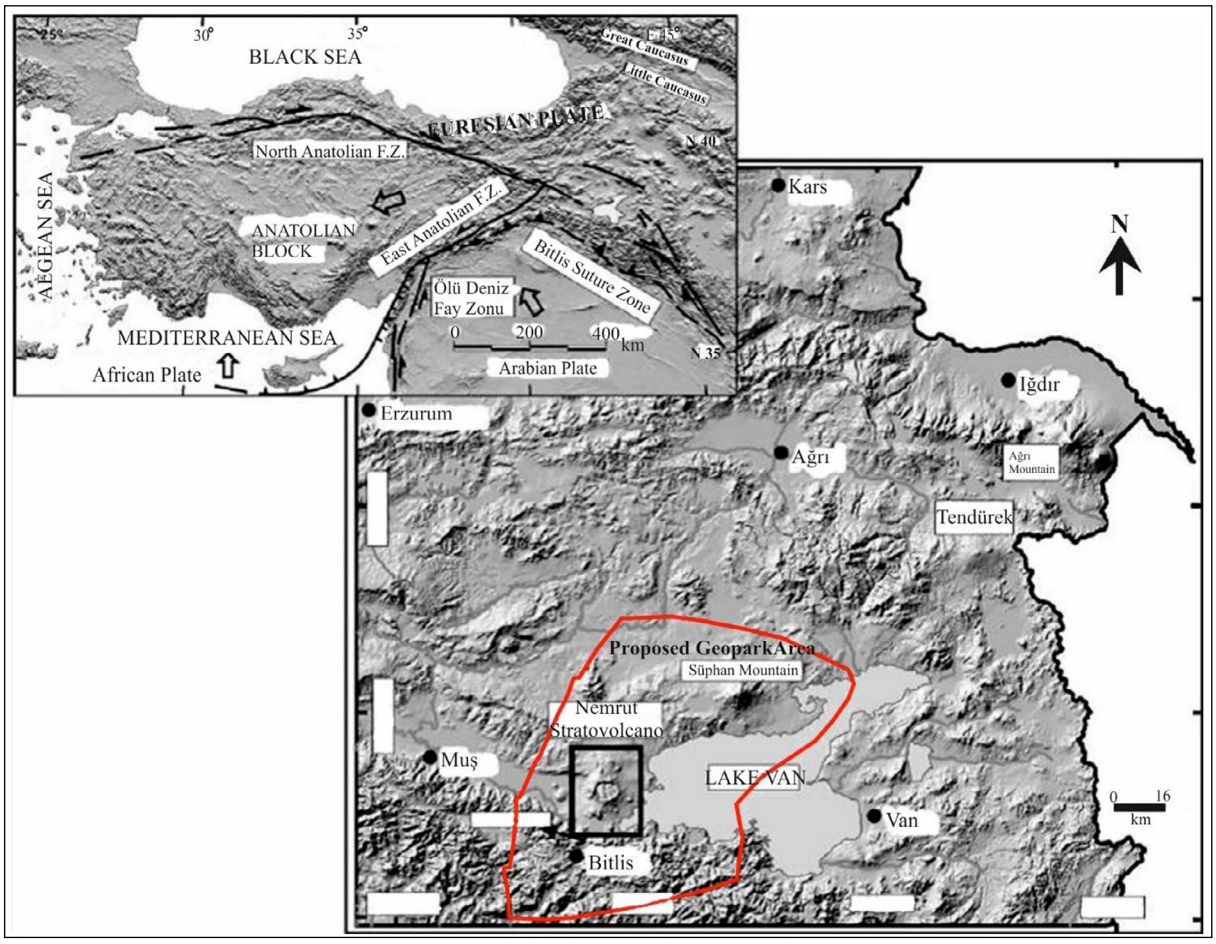


Figure 4- Regional tectonic location of Nemrut and Süphan Stratovolcanoes, their surroundings and the proposed geopark area (modified from Özdemir et al., 2006).

The proposed geopark area is in the region of an ocean called the Neotethys that existed here 200 million years ago. Neotethys Ocean was squeezed and disappeared between the Arabian Plate moving northward and the relatively stable Eurasian Plate. One part of this oceanic crust was disappeared by subducting into the mantle, and some crust fragments were settled on the continental crust in both directions by thrusting and met the continent to continent collision. The hypothetical model of this geological evolution was shown by Oberhansli et al. (2011) in Figure 5. In addition, the hypothetical model about the geological evolution of the region prepared by Keskin (2007; 2012), who carried out detailed studies on volcanism in the region, is given in Figure 6.

4. Geopark Inventory Studies

Before starting the Nemrut - Süphan inventory of geosites in the geopark, the purpose of this study has been clearly demonstrated in terms of topic, scope / value, scale and use. Considering the attitudes in studies of Lima et al. (2010), the geosites determined in this field have been defined and determined for use in the Nemrut - Süphan geopark project, some of which have scientific value and some have aesthetic value. According to this:

Subject: Formations that have the characteristics of Geosite in Nemrut - Süphan Geopark

Scope / Value: Geosites remaining in the specified area have features that can be used for both scientific/ educational and touristic purposes. Some of the determined geosites are unique geological structures representing a very characteristic period in the formation process of the earth's crust and they have the potential to be registered as a "geological heritage" in this respect. Some of these have features that can serve educational and touristic purposes more.

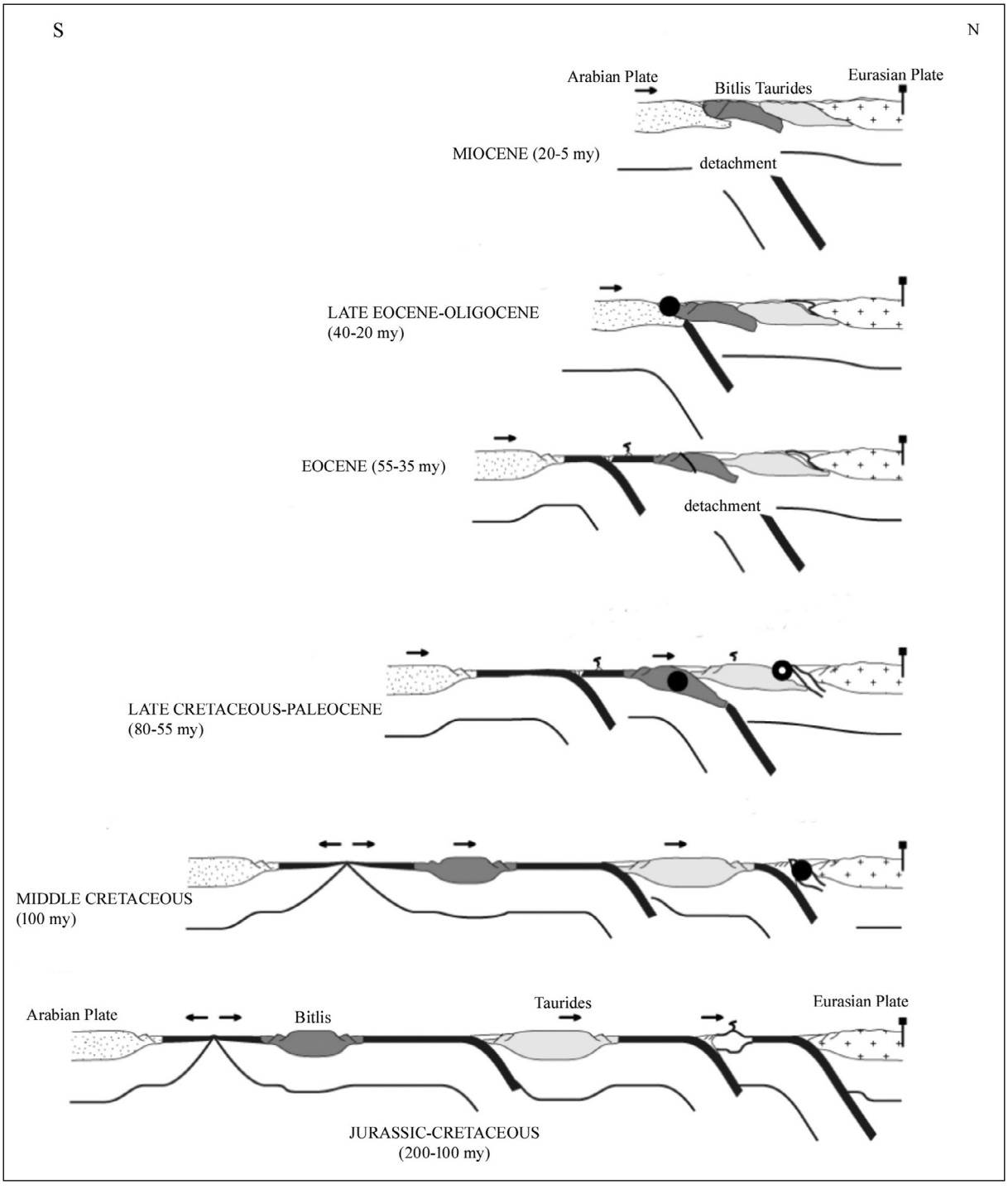


Figure 5- Jurassic-Miocene geological evolution of the SE Anatolia (modified from Oberhansli et al., 2011).

Scale: The boundaries of the inventory study area are shown in Figure 1. Besides, Nemrut and Süphan volcanoes, which are the two largest stratovolcanoes of Turkey, are located in an area of approximately 5300 km^2 within the boundaries of Bitlis Province, in Güroymak, Tatvan, Adilcevaz and Ahlat districts and in the geopark area constituting the western part of the Lake Van in addition to Bitlis city center.

Purpose of Use: The primary purpose of the inventory studies is to serve the geotourism activities to be carried out within the scope of the geopark to be

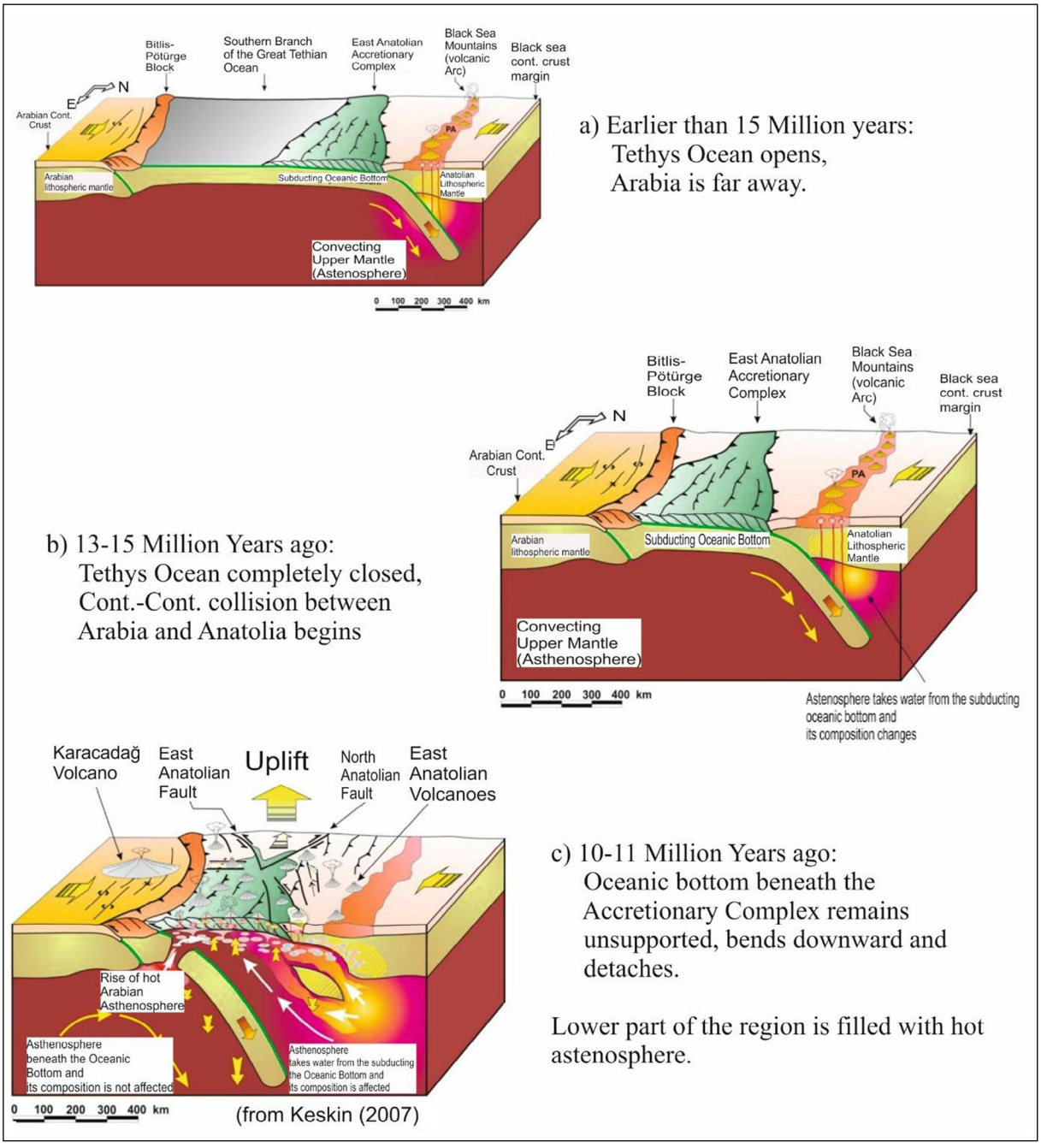


Figure 6- Geological evolution of the SE Anatolia Region in Miocene: Earlier than 15 Million Years: Lower Miocene; 13-15 Million Years: Middle Miocene; 10-11 Million Years: Upper Miocene (from Keskin, 2012).

defined in the area described above. In addition, some geosites have a special importance with their "high scientific value". Therefore, it has been suggested that they should be evaluated for this purpose. In addition, the determined geosites are also a potential geological heritage element and they are also an application object for geoconservation strategies to be established in this context.

Geosites in this context were evaluated under the provisions of the "Regulation on Procedures and Principles Regarding the Determination, Registration and Approval of Protected Areas" published in the Official Newspaper No.28358 in 19.07.2012 with the article 13/A of Decree Law (KHK) number 644 and the Law number 2863. Thus, the process of registering these geosites as elements of "geological heritage"

will be initiated. In the defined geopark area, the proposals were developed for the "geo - conservation" strategies necessary for the "geological heritage" value formations identified among the geological assets that have witnessed the evolution of the earth's crust for the last 550 million years, to participate in sustainable development processes.

4.1. Method

For the display format of geosites considered within the scope of this study, the standard display recommendations in Çiftçi and Güngör (2016) were adopted. For the geosite classes, a combined chart containing the classification codes proposed in the same publication and determined by Pro Geo (1998) was applied (Çiftçi and Güngör, 2016; Table 1). In this display proposal, it was aimed at defining the main geographical location for geosites, definition of geosite, geological heritage features, physical environment - security - logistics, protection / conservation features, geosite inventory features, appearance at the time of preparation of the inventory and all kinds of scientific and visual features (if any) under representational sections in the geopark museum (Figure 7). As a matter of fact, Kazancı et al. (2015) and Brilha (2016) suggested a similar casting form. However, the forms suggested in this study will be meaningful and useful documents when they are turned into a catalog, independent of the report. The mentioned form was reconstituted and developed according to the regulations in Turkey (Figure 7).

4.2. Georoute Studies

The proposed geopark area is very large and has an extremely wide geodiversity. This wide areal spread was presented to the service of the geopark with georoutes created in different concepts (Figure 1). A sufficient number of geosites were identified on each georoute, as far as possible, in accordance with the "**accessibility**" and "**protection**" criteria. Some of these geosites are also among the geological heritage items in the region. However, the main criterion has been the determination of geosites, which are easily accessible for visitors at all ages, whose visual features are in the foreground and can also be used for educational purposes, in accordance with the purpose of the geopark management. In this study, a total of 44 geosites were determined and their list is given in Table 1.

In the area defined on Figure 1, firstly; five (5) georoutes have been defined and care has been taken to keep the geosites that will represent the regional geology on these routes. Likewise, taking into account some geosite locations that are important in terms of "**scientific value**", the routes of these georoutes were determined. The georoutes defined on Figure 1 were arranged in a way that allows visitors to visit the geopark to make a "time travel" from past to present in the context of geological history. While doing this, the care was taken to find logistical facilities on each georoute considering the advantage of the transportation infrastructure as much as possible. The 5 georoutes determined in this study, were introduced separately together with the geosites on and/or around them, below.

Georoute - 1: Georoute - 1, marked as "Bitlis - Mutki - Bitlis" on Figure 1, were determined in a way that it would represent ultrabasic and basic rocks belonging to the ophiolitic sequences that were deposited on these basement rocks during the closure of Neotethys, together with the core and cover rocks of the Bitlis Massif. There are also flow products of quaternary volcanism in the Baykan Valley and the travertine formations left by the geothermal waters that exit along the faults controlling this valley on this route. However, since the general context of this route is the "**Journey from Precambrian to Present**", the geosite location was not determined among the young formations on the route. The geosites belonging to these young formations were determined on the Georoute - 2.

Georoute - 2: Georoute - 2, marked as "Bitlis - Tatvan - Pz" on Figure 1, together with the core and cover rocks of the Bitlis Massif, was determined in a way that it would traverse unconformably overlying these basement rocks, the travertine deposits developed in Quaternary and the volcanic products of the Nemrut Volcanism. It was determined to traverse volcanic products. Representative ones belonging to geosites on Georoute 1 and 2, whose features are given in Table 1, are shown in Figure 8.

Georoute - 3: Georoute - 3, marked as "Tatvan - Nemrut - Ahlat" on Figure 1, was created to introduce each stage of the formation of the Nemrut Stratovolcano. Each of the geosites given in Table 1 represents one stage in the formation of the Nemrut Stratovolcano. These locations to be carefully

NATURAL HERITAGE TYPE: GEOLOGICAL HERITAGE (GEOSITE)

GEOGRAPHIC LOCATION				GEOSITE DEFINITION	
X:		Y:	Z:	GEOSITE NAME	
COORDINATE SYSTEM: PROJECTION (REF): ZONE: 1:25000 SHEET NO:				GEOSITE CLASS GEOSITE CODE: GEOSITE SCORE	(Based on Pro Geo (1998)
PROVINCE	DISTRICT	VILLAGE		DIMENSIONS:	
				GEOLOGIC NAME: GROUP: FM: MBR.	
LOCALITY				GEOLOGICAL AGE	
DESCRIPTION of TRANSPORTATION:				LITHOLOGY	

FEATURES of GEOLOGICAL HERITAGE	PHYSICAL ENV., SECURITY, LOGISTICS	
DESCRIPTION	DIST. to MUSEUM	
	ROUTE NAME, NO:	
SCIENTIFIC VALUE and LIKE WISE FORMATIONS	CLOSEST WATER SOURCE	
	CLOSEST LOGISTIC STATION	
BEST OBSERVATION/SIGHT SEEING POINT	RISKS of NATURAL DISASTER	
RECOMMENDED MATERIALS for INVESTIGATION/OBSERVATION	**EMERGENCY CALL:**	

GEOSITE CLASSIFICATION (Gen. Dir. for Protection of Natural Assets)

Chart 20.1					Chart 20.2			
Natural Aesthetics	Infrequency	Sensitivity	Scienticity	Ave. Score	Regional Importance	National Importance	International Importance	Importance Score

TOTAL SCORE (Charts 20.1and 20.2)

PROPOSAL for PROTECTION AREA

A ABSOLUTE PROTECTION AREA (>10 points)	B QUALIFIED NATURAL PROTECTION AREA (6-9 points)	C SUSTAINABLE PROTECTION and CONTROLLED USE AREA (3-5 points)

GEOSITE INV. NO of TURKEY TR-00/0000	
FEATURES of GEOSITE INVENTORY	
GEOPARK NAME	
PREPARED BY	
DATE of PREPERATION	
SUGGESTED AS GEOSITE BY:	
RELATED ARTICLES	
ADDRESS for ADDITIONAL INFO	

ITS VIEW in INVENTORY HISTORY	ITS LOCALITY in the GEOPARK/GEOROUTE

Figure 7- Geosite Inventory Form (Çiftçi and Güngör, 2016).

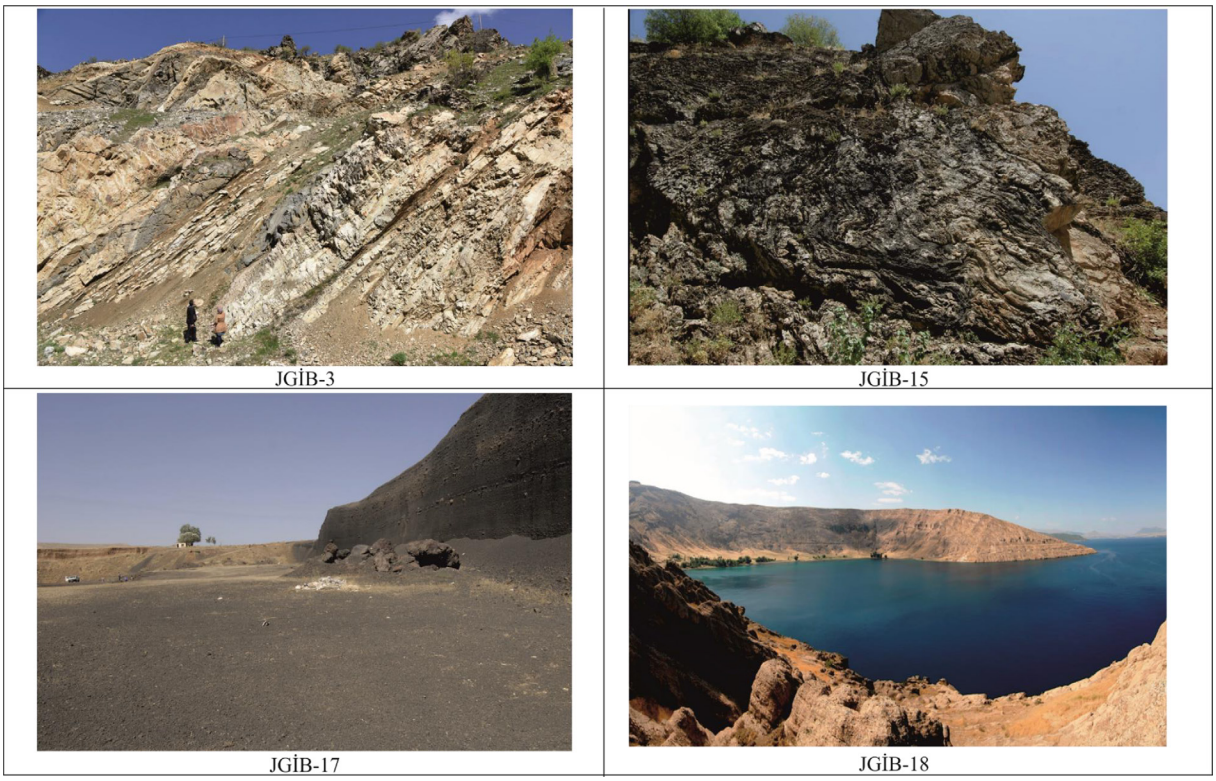


Figure 8- Some geosites on Georoute-1 and Georoute-2.

preserved and to introduce them to visitors in a predetermined order will make it easier to understand the geological formation of the Nemrut Stratovolcano. Representative ones belonging to these geosites whose properties are given in Table 1 are in Figure 9.

Georoute - 4: Georoute - 4, marked as "Ahlat - Adilcevaz - Süphan" on Figure 1, was created to introduce the formation of the Süphan Stratovolcano. Some geosites in this area are not located on the said georoute. However, the route in question has been determined as the safest route since it is also a climbing route to Mount Süphan. Visitors who will make investigation on this route should act with a professional mountaineer. Representative ones belonging to these geosites whose properties are given in Table 1 are on Figure 10.

Georoute - 5: The destination of the fifth georoute determined in the Nemrut - Süphan geopark and geological observation stations on this route are shown on Figure 1 with the sign "Adilcevaz - Lake Van - Tatvan". The purpose of determining this route is to exhibit the sedimentary rock presence of the Geopark and the young sedimentary formations of the region. There are young lake deposits of the Lake Van and very special "Tufa Deposits" on the route. When you come to the shore of the Lake Van, the boat journey starts towards Tatvan. The purpose of this georoute is to allow the observation of stratomatolitic biological formations, which remain on the route and develop at the bottom of the Lake Van. Diving on this route is only possible for visitors with a "high altitude diving" certificate. When viewing condition is suitable, the Tuff Cone from the Lake İncekaya will create an extremely interesting visual feast. Representative ones belonging to these geosites whose properties are given in Table 1 are on Figure 11.

The locations and routes of georoutes in the geopark are given in Figure 12.

4.3. Cultural Heritage Inventory

There is a wide range of cultural heritage elements with archaeological and ethnographic features, from obsidian workshops, which are thought to belong to the Neolithic period, to recent ethnographic values in the Nemrut - Süphan geopark and its immediate surroundings. The carved shelters that enabled traces of human life in Ahlat to be traced back thousands of years are intertwined with the İlhanlı - Seljuk

Table 1- Georoutes determined in Nemrut-Süphan geopark and the geosites identified on / around them, their ages and lithologies.

Geouroute	Geosite Name	Geological Age	Explanations
Georoute-1: Bitlis-Mutki-Bitlis	JGİB-1	Precambrian	Gneiss, Schist
	JGİB-2	U. Paleozoic	Metagranite
	JGİB-3	Precambrian	Schist
	JGİB-4	U. Cretaceous	Peridotite
	JGİB-5	Trias.-L. Juras.	Metavolcanite
	JGİB-6	U. Senonian	Flysch
	JGİB-7	Eocene	Continental clastic
	JGİB-8	L-M. Eocene	Volcanite/Sed. rocks
	JGİB-9	L. Permian	Limestone, marble
	JGİB-10	U. Permian	Limestone
	JGİB-11	Precambrian	Biotitic metagranite
Georoute -2: Bitlis-Tatvan-Pz	JGİB-12	Quaternary	Basalt, ignimbrite
	JGİB-13	Paleozoic	Gneiss, Schist
	JGİB-14	Precambrian	Metagranite
	JGİB-15	Paleozoic	Amphibolite
	JGİB-16	Quaternary	Travertine
	JGİB-17	Quaternary	Scorian deposits
	JGİB-18	Quaternary	İncekaya tuff cone
Georoute -3: Tatvan-Nemrut-Ahlat	JİGN-1	Quaternary	Nemrut Camels
	JİGN-2	Quaternary	Pyroclastic debris
	JİGN-3	Quaternary	Rhyolitic lava flow
	JİGN-4	Quaternary	Nemrut Caldera
	JİGN-5	Quaternary	Post-caldera freatom. deposits
	JİGN-6	Quaternary	Post-caldera rhyolitic lava
	JİGN-7	Quaternary	Maar crater
	JİGN-8	Quaternary	Steam pipe
	JİGN-9	Quaternary	Ilığ Lake
	JİGN-10	Quaternary	Nemrut Crater Lake
	JİGN-11	Quaternary	Kantaşı (Bloodstone)
	JİGN-12	Quaternary	Nemrut Opening Crack-1
	JİGN-13	Quaternary	Nemrut Opening Crack-2
Georoute -4: Ahlat-Adilcevaz-Süphan	JGİS-1	Quaternary	Baking Zone
	JGİS-2	Quaternary	Rhyolitic Obsidian
	JGİS-3	Quaternary	Aygır Maar
	JGİS-4	Quaternary	Blocky Ash Flow
	JGİS-5	Quaternary	Dacitic Dome
	JGİS-6	Quaternary	Süphan crater
	JGİS-7	Quaternary	Trachytic lava
Georoute -5: Adilcevaz- Van Lake-Tatvan	JGİA-1	Quaternary	Recent Lake Dep.
	JGİA-2	L. Miocene	Fossil cemetery
	JGİA-3	U. Cretaceous	Peridotite
	JGİA-4	Quaternary	Tufa deposits
	JGİA-5	Quaternary	Travertine channel
	JGİA-6	Quaternary	Microbialitic formations
	Stromatolite and microbialitic occurrences at the bottom of the Lake Van. These represent the oxygen-producing cyanobacteria activities that formed the first atmosphere in the early phase of life on Earth. Guided diving can be done with high altitude diving certificate and equipment.		

JGİN-1

JGİN-5

JGİN-10

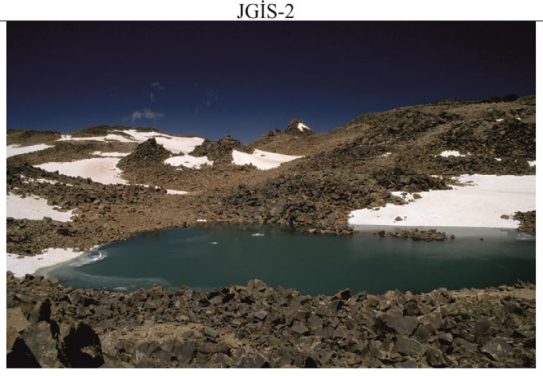
JGİN-11

Figure 9- Some geosites on Georoute-3.

JGİS-1

JGİS-2

JGİS-3



JGİS-6

Figure 10- Some geosites on Georoute-4.

Figure 11- Some geosites on Georoute-5.

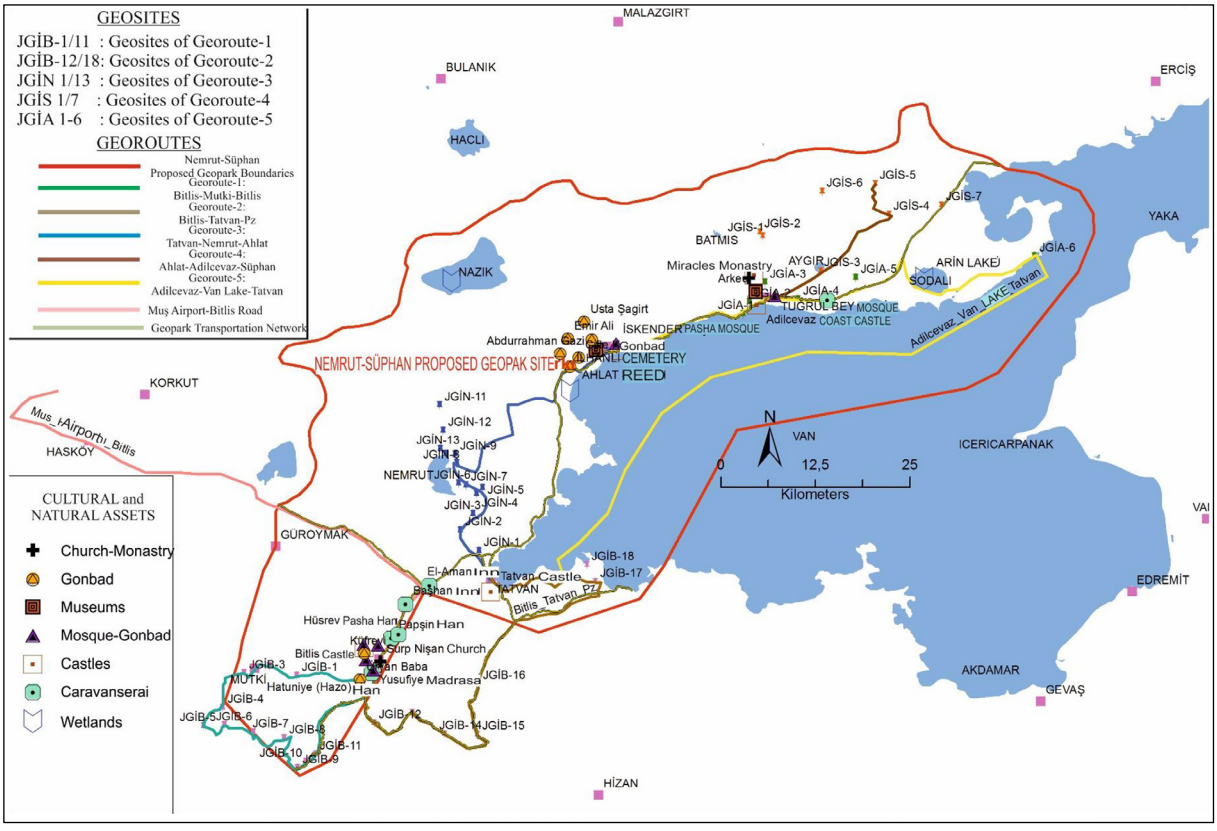


Figure 12- Proposed Nemrut-Süphan geopark routes, natural and cultural assets (the geosite numbers also indicate the order of visits).

cemetery (Figure 12). It is understood that the region is a center of attraction due to the shelter / feeding opportunities it offers to Paleolithic and Neolithic people. Its proximity to the Mesopotamian region and the richness of natural resources (obsidian, metallic mineral) also fed the Urartian civilization in the later period. After the Roman - Byzantine civilizations, the Malazgirt victory in 1071, which is located in the near northern part of the geopark area, initiated the settlement and spread of the Turks in the region. In addition to structures such as; Han, Bath, Madrasa, Gonbad and Mansion the Ahlat Seljuk cemetery, the Seljuk Gonbads, which fascinates people with their unique stone workmanship and is included in the UNESCO World Cultural Heritage Temporary list form the most important elements of the cultural heritage of the geopark area. The cultural heritage elements in the region, which is very rich in terms of cuisine culture and handicrafts, are given in Table 2. Representatives of these cultural heritage elements whose characteristics are given in Table 2 are given in Figure 13.

Many plants that are consumed starting from the spring and grow in nature are among the important nutritional habits of the region. Çiriş plant (gullik), cağ, uşkın, various mushroom and kenger species are among the important natural food resources of the region, which date back thousands of years. Representatives of these ethnographic elements whose features are given in Table 2 are given in Figure 14.

4.4. Natural Life

Lakes, lake shores and especially the delta areas where fresh waters meet lakes are the most important wetlands in the basin (Adızel et al., 1995). Many plant and animal species live in different habitats from the plains on the basin bottom to the peaks of high mountains. In addition to sweet, salty, bitter and sparkling habitats, the endemic species specific to the basin have been formed as a result of the influence of many environmental factors such as altitude and climate (Çetinkaya, 1999; Çetinkaya et al., 1995). The natural assets and biodiversity elements other than the geosites in the Geopark area are given in Table 3. The necessary information about these natural assets has been compiled and is excluded from the content of this article. However, these natural assets have been effective in determining the georoutes.

4.5. Outdoor Sports

In the Nemrut - Süphan proposed geopark, there are eight trekking (DY - 1/8), four bicycles (B - 1/4), four tour skis (TK - 1/4), three canoes (K - 1/3) and two climbing routes were determined and shown on the geopark map.

The general characteristics of all routes and the associated geosites are given in Table 4.

5. Geopark Workshop and Trainings

Two geopark workshops were held during the study period. These workshops were implemented by creating common ideas. In addition, three "Geopark Training Studies" were conducted. Educational activities were carried out separately at Primary, High School and University levels and field trips were organized. In these studies, very warm feedback was received from the students.

6. Results

Nemrut - Süphan proposed geopark is an internationally qualified geopark candidate with its unique geological, biological and cultural heritage elements. Table 5 was created by evaluating the geosites determined in the geoprak area in accordance with the criteria of the General Directorate for Protection of Natural Assets. When this table is analyzed, 18 of the 44 (+1) proposed geosites "Definitely Protected Areas" (A); 18 of them "Qualified Natural Protection Areas" (B) and 9 of them have been proposed to be declared as “Sustainable Protection and Controlled Use Areas” (C).

All other geopark values, especially the geosite locations, are defined in easily accessible, promoted and protected locations. Thus, it is ensured that the geopark is more suitable for sustainable management conditions. Of course, the more detailed studies can be carried out for the proposed geosite areas in the geopark area or the formations that have the characteristics of "geoheritage" from geological assets in other locations, and even these can be added to the natural assets of the geopark during the operation process, the geodiversity can be enriched and the UNESCO criteria of the geopark can be developed.

Table 2- Elements of Cultural Heritage of the Nemrut-Süphan Geopark.

Cultural Heritage		NAME	PERIOD	EXPLANATION
CULTURAL HERITAGE (ARCHEOLOGY)	ARCHEOLOGICAL MUSEUMS	**Ahlat Archeological Museum**	**Urartian, Roman, Byzantian, Seljuk, Ottoman**	It is adjacent to the historical Seljuk Cemetery, which is established on an area of approximately 200 decares in Ahlat.
		Adilcevaz Archeological Exhibition Area	**Urartu**	It is a small exhibition area where the findings from the Kef Castle excavations are displayed behind the Adilcevaz Bus Terminal.
	TOMBS	**Küfrevi Tomb (Bitlis)**		The tomb, which was built in 1898 in a completely different style from the Bitlis architectural structure, is a visiting place in the garden of Küfrevi Mansion.
		Emir Bayındır Tomb (Ahlat)		It is located in Taht-ı Süleyman district. The name of Melik Bayındır İbn-i Rüstem Bey, who died in 886 in Hijri, is written in the inscription that surrounds the gonbad all around.
		Çifte Tomb (Ahlat)		Two gonbads are next to each other. The big gonbad belongs to Bugatay Aka and Şirin Hatun (Lady) from Akkoyunlu, and the small gonbad belongs to Esen Tekin Hatun. It is written in the inscriptions on the south and west sides that the tomb was built in 1280.
		Emir Ali Tomb (Ahlat)		This gonbad is located on the (Harabe Şehir) ruined city road. Since its inscription was broken during the Russian war, the exact date of its construction is not known. Based on its architectural features, it is thought to belong to the 14th century.
		Usta Şagirt Tomb (Ahlat)		It is located in the south of Meydanlık cemetery, very close to the Lake Van. It is called "Ulu Kumbet (Gonbad)" because it is the biggest gonbad of Ahlat.
		Şeyh Babo (Üryan Baba) Tomb (Bitlis)		There is no inscription of the tomb located on a hill in İnönü district. However, the date 1834 is written on the tombstone inside.
		Abdurrahman Gazi Tomb (Ahlat)		This person is from Sahabe-i Kiram and he was under the command of Al-Jazeera Commander Iyaz Bin Ganem, who was assigned to conquer the region in 641 during the time of Hazrat Omar and was martyred here during the conquest of Ahlat.
		Ahlat İlhanlı Cemetery		In the cemetery, apart from the cist graves with and without witnesses, each of which has a monumental structure, there are also chamber-style underground tombs, which are the Central Asian Turkish Tomb types.
	CASTLES	**Bitlis Castles (Bitlis)**		Bitlis Castle, located on the steep slope of the bazaar in the city center, was built in 312 by one of their commanders, Leys Bedlis, on the order of Alexander the Great.
		Tatvan Castles (Tatvan)		It was built by Zal Pasha, one of the viziers of Suleiman the Magnificent, in the Tuğ quarter of Tatvan.
		Ahlat Coast Castles (Ahlat)		The castle, which belongs to the Urartu period, was destroyed in 1224 as a result of a severe earthquake. It was rebuilt by Suleiman Magnificent in 1556.
		Adilcevaz Coast Castles (Adilcevaz)		It is an Ottoman period castle built on steep rocks on the shore of the Lake Van.
		Kef Castles (Adilcevaz)		Kef Castle, which is located at 6 km from Adilcevaz on a hill to the north of it and estimated to be Arzaşkun City, is a settlement where the Urartians lived.
	MOSQUES and GONBADS	**Ulu Mosque (Bitlis)**		The mosque located in the city center of Bitlis, was built by Ebu'l Muzaffer Muhammed in 1150 AD according to its inscription.
		Gökmeydan Mosque (Bitlis)		The dates of 1801 are recorded on the inscription and 1924 in the inscription of the minaret of the mosque in the central Gökmeydan district.
		Adilcevaz Tuğrul Bey (Zal Pasha) Mosque		It is on the Adilcevaz-Ahlat road by the lake. It was built in the 16th century.
		Ahlat İskender Pasha Mosque		It is in the old Ahlat castle. According to its inscription, it was built by Iskender Pasha, probably by the architechture Mimar Sinan, on the date of 992 (AD.1584).

Table 2- Continue[n].

CULTURAL HERITAGE (ARCHEOLOGY)	MADRASAS and BATHS (HAMMAMS)	**İhlasiye Madrasa (Bitlis)**	The madrasa located in the city center was built by the Seljuks in 1216.
		Yusufiye Madrasa (Bitlis)	This madrasa located in the central Girik Düzü locality is thought to have been built in the 17th-19th century.
		Han Palace Hammam	On the castle
		Palace Hammam	Zeydan District
		El Aman Hammam	In the El Aman Caravanserai
		Ahlat and Adilcevaz Castle Hammams	Only the remnants
	HANS and CARAVANSERAIS	**Hatuniye (Hazo) Han**	It was built in 1626-1627, according to the inscription of the Hazo Han, which is located in the south of Bitlis, near the Bitlis River, in the vicinity of Alemdar Bridge. It is said to have been built in the 11st century by Hamu Hatun, the daughter of Sultan Evhadullah Han from the Abbasids.
		Papşin (Hüsrev Pasha) Han	Located on the Bitlis-Tatvan highway. It is rumored that it was built by Beylerbeyi Hüsrev Pasha in the 16th century.
		Başhan Han	Located on the Bitlis-Tatvan highway. It is rumored that it was built by Beylerbeyi Hüsrev Pasha in the 16th century.
		El-Aman Han	El Aman Han, one of the largest caravanserais in Anatolia, constitutes a gonbad with its shops, mosque and bath. It was built by Hüsrev Pasha in the 16th century.
		Şerefiye, Arasa, Yusufiye, Duhan and Kokoz Zal Pasha Hans	
	BRIDGE, SPA	**Narlıdere (Kasrik) Bridge**	This magnificent structure located in Narlıdere Village on the Bitlis-Baykan road was approximately constructed in 16th -17th centuries.
		Ahlat Emir Bayındır Bridge	It is estimated that it was probably built in the 13th century and was repaired or renovated in the Akkoyunlu period in the 15th century.
		Güroymak (Çukur) Spa, Ilıcak (Germav) Spa, Nemrut Mountain Spa, Alemdar, Köprü Altı, Çim Çölmüğü, Arap Bridge, Yılan Dirilten, Acı Su spa and etc.	
	CHURCH, MONASTRY	**Miracles Monastry and Church**	Adilcevaz is on the opposite slope of the Kef castle.
		Surp Nişan Church	It is in the Kurubulak locality of Herzan District in the city center of Bitlis.
	HANDICRAFTS	**Weaving**	The handicrafts woven on hand looms are mainly gej (local fabric), prayer rug and saddlebag, cacım, aba and Bitlis Belt, carpet and rug.
		Harik	Local shoe
		Pottery, needle and bead lace, stonework and walking stick making	
		Stone work	These rocks, which are called as Ahlat stone and are one of the erupted breccias of Nemrut Volcano, are used as traditional building stones in the region. This material was used in most archaeological and ethnographic works in the region.
		Wood carving	Ahlat stick is the most important wood carving product unique to the region.
		Local architecture	Bitlis Houses
	CUISINE CULTURE	Local dishes cooked in the region are; Stuffed Meatballs, Şekalok Meal, Tutmanç Aşı (food), Çorti Meatballs, Büryan Kebab, Stuffed Dolma, Gari Aşı, Ayran Aşı, Glorik, Gebol, Çireş Beet, Kengerli Rice, Halim Aşı, Keşkek, Çorti Aşı, Keledoş and so on.	
	NATURAL and ENDEMIC NUTRITION SOURCES	Cağ plant, gullik (çiriş weed), kenger and ışgın plants are consumed in different ways.	

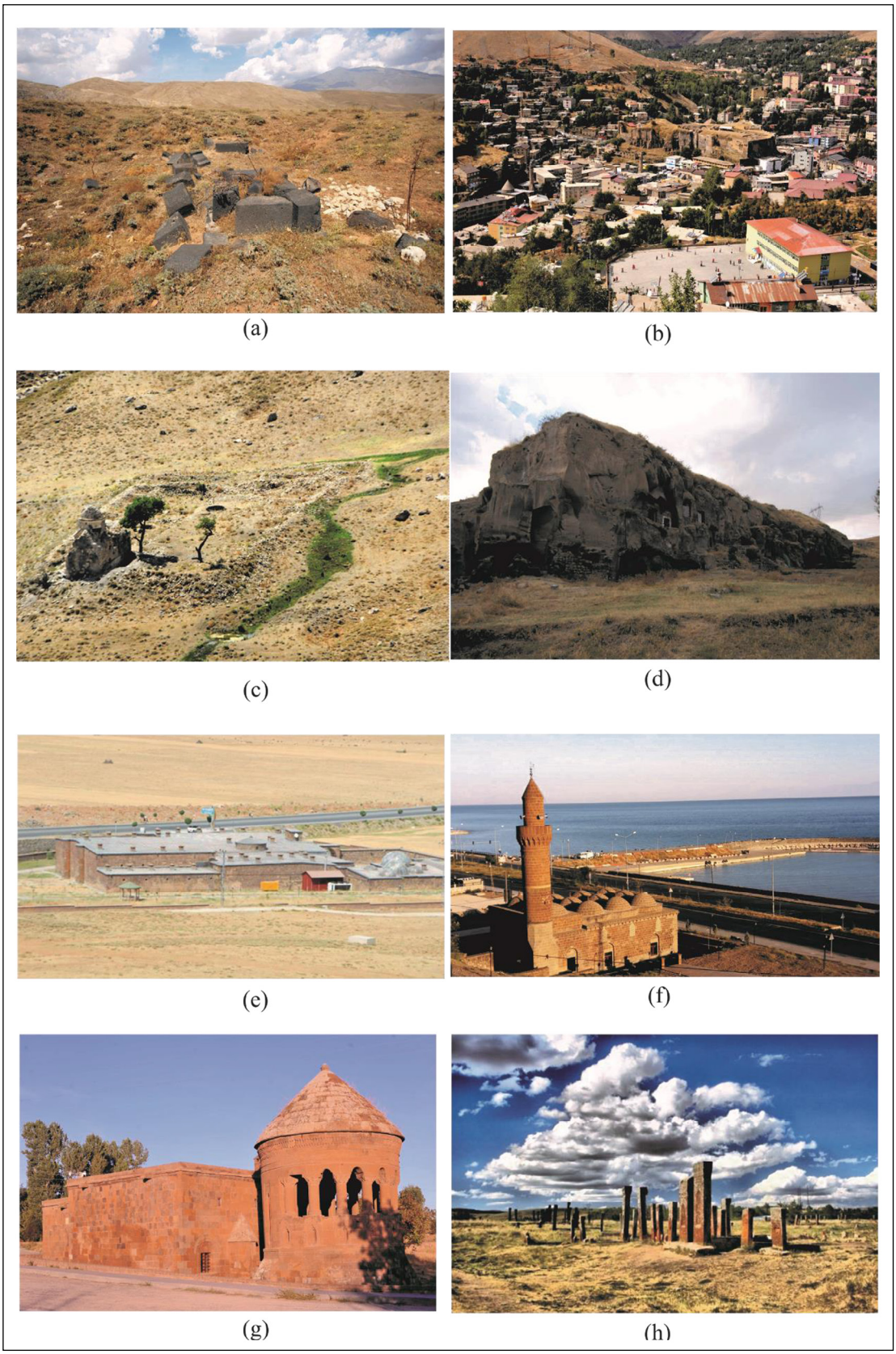


Figure 13- Some cultural heritage elements found in the Nemrut-Süphan proposed geopark: a) Kef Castle, b) Bitlis Castle, c) Miracles Monastery, d) Neolithic cave houses, e) El-Aman Han, f) Adilcevaz Zal Pasha Mosque, g) Emir Bayındır Gonbad, h) Ahlat-İlhanlı Cemetery.

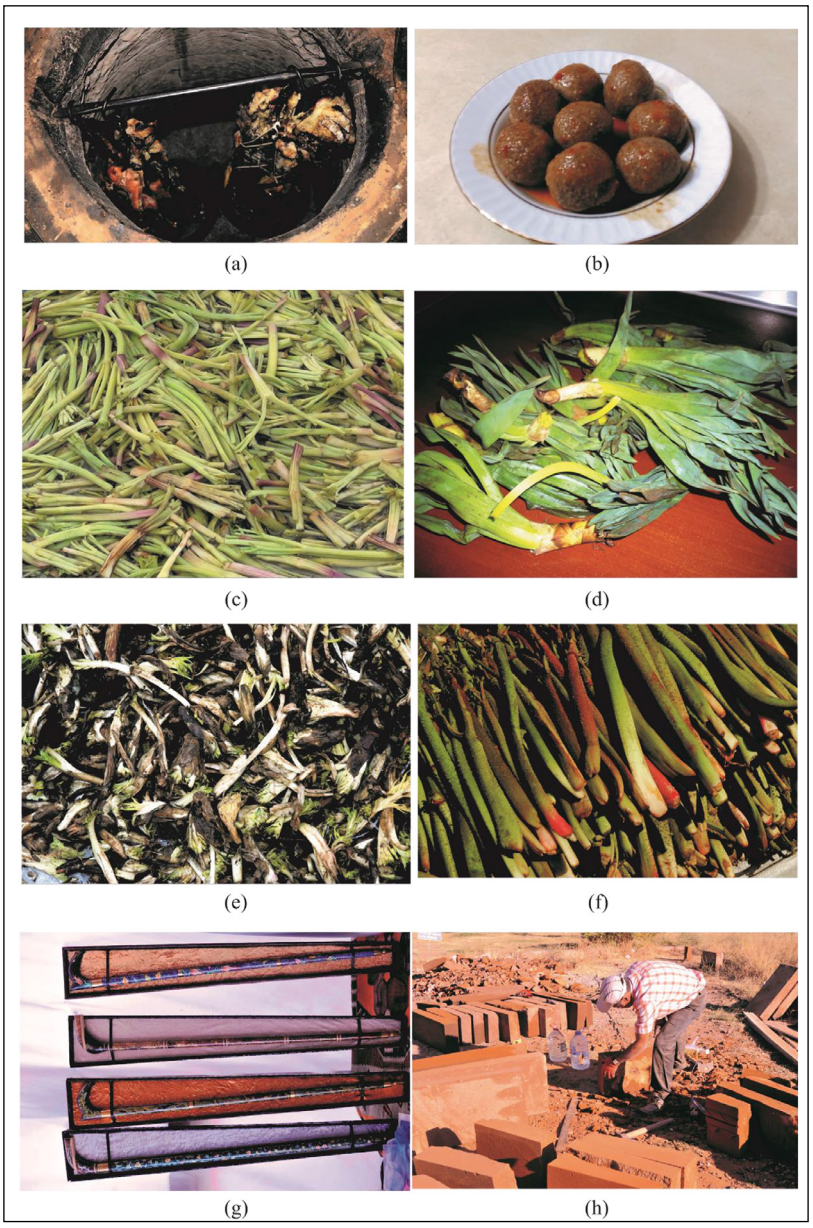


Figure 14- Some ethnographic values found in the Nemrut-Süphan proposed geopark: a) Büryan Kebab, b) Bitlis Meatball, c) Cağ plant, d) Gulik (green grass) plant, e) Kenger plant, f) Uçkun plant, g) Ahlat stick, h) Ahlat Stone (ignimbrite).

Table 3- Other natural heritage elements / natural assets, protected areas, biodiversity elements in the Nemrut-Süphan geopark area and its surroundings.

Natural Assets	Lake Van (with soda)	Lake Van is a soda lake with an average water surface of 1,646 m^2, the southern coast deepening rapidly and the deepest point of which is approximately 460 m, spreading over an area of approximately 390,000 ha.
	Arin Lake (with soda)	It is one of the most important points in terms of bird presence in the basin. It is classified as class B wetland in the literature.
	Nazik Lake	As a result of the drastic decrease in the water level in recent years, the reeds on the coasts have been significantly damaged. Fishing is done in the lake.
	Nemrut Crater Lake	It is the highest altitude volcanic wetland in the basin. It is located in the crater pit of Mount Nemrut. It consists of two lakes, one hot and the other cold.
	Aygır Maar Lake	Aygır Maar has a circular crater about 1.5 km in diameter on the SE slope of Süphan Volcano (Figure 1). Maar products have reached a distance of approximately 2.5 km from the crater.
	Ahlat Reed	Ahlat Reed is a very rich natural asset with its 101 bird species.

Table 4- Outdoor sport routes in the Nemrut-Süphan Geopark: T: Trekking; B: Bicycle; C: Canoe; TS: Tour Skiing routes.

ROUTE NAME	START-END POINTS	GEOSITES on ROUTES	LENGTH (m)
Kışkılı Climbing Route	Adilcevaz-Kışkılı Locality-Süphan Summit	JGİS-6	9,2
Harmantepe Climbing Route	Adilcevaz-Harmantepe Village-Süphan Summit	JGİS-6	10,5
T-1	Tatvan-İncekaya Village -Bamya Hill	JGİB-18	3,4
T -2	Tatvan-İncekaya Village -Deşte Hill	JGİB-18	4
T -3	Tatvan-Çataltaş Village -Deşte Hill	JGİB-17, 18	3
T -4	Nemrut Caldera-Around the Hill	JGİN-4, 5, 13	20
T -5	Nemrut-Derinbayır Village – Kantaşı	JGİN-11, 12	19
T -6	Aygır Maar Lake Surround	JGİS-3	5,6
T -7	Kirkor Dome	-	10
T -8	Adilcevaz-Kef Castle	JGİA-3	10
B-1	Between Tatvan-İncekaya Village, Coast of Lake Van	JGİB-18	20
B-2	Ahlat-Nemrut Caldera-Tatvan	JGİN-1, 2,3, 4, 5, 8	50
B-3	Adilcevaz-Aygır Maar Lake Surround-Adilcevaz	JGİA-4; JGİS-3	23
B-4	Adilcevaz-Arin Lake Surround-Adilcevaz	JGİA-4, 5	58
C-1	Tatvan-İncekaya Cove-Çataltaş	JGİB-18	24,5
C-2	Nemrut Crater Lake Surround	JGİN-10	19
C-3	Nazik Lake Surround	-	31,6
TS-1	Harmantepe Village -Süphan Crater-Kışkılı Locality	JGİS-6	17
TS-2	Boryan Village - Kirkor Dome – Çilhur Village	-	8
TS-3	Boryan Village -Kirkor Dome-Cankurtaran	-	9
TS-4	Taşharman (Ahlat)-Nemrut Crater-Tatvan	JGİN-1, 2, 3, 4, 5	37,4

7. General Assessment and Proposals

By conducting field studies within the framework of the main context in the Nemrut - Süphan proposed geopark area and its surroundings, the geosite inventory, literature studies, cultural heritage and natural asset inventory studies were completed, geopark and geological maps were prepared and all geopark inventories were indicated on these maps and made available to use. The things to be done in the next step are given below. When these studies are completed, the Nemrut–Süphan proposal geopark will be opened to visitors as an approved geopark.

1. Studies continue for a "Geopark Management System" and "Implementation Program".

2. El - Aman Han, one of the largest caravanserais of the Anatolia, built in the 16th Century, is considered for the "Geopark Visitor Center" and "Geopark Museum".

3. The design of the introductory signs of the determined geosites has been made and the preparation step has started. The ignimbrites, one of the natural building stones in the region, should be used for the signs.

4. Studies on the production of brochures, books, booklets and maps describing the Nemrut – Süphan proposed geopark have been completed and introductory documents (with English, French and German translations) will be prepared for all geopark elements before the operational step.

5. Works have started for the production of local souvenirs, especially the Ahlat stick.

6. Works continue for resting and logistic stations to be established at "Observation Points" in certain locations within the geopark.

7. "Continuous Education Programs" have been prepared within the geopark. These trainings have been started and will continue in a certain order after the geopark is opened to the visitors.

8. The procedure for informing all local government elements on the subject has been implemented, but this has been limited. In the next stages of the work, the

Table 5- The scoring and geoconservation proposal table of the proposed geosites (designed according to the Regulation of the General Directorate for Protection of Natural Assets).

PROPOSED GEOSITES			GEOSITE CODE AND CLASS*										CHART 20.1**					CHART 20.2**				TOTAL SCORE***	PROPOSAL of PROTECTION AREA**		
CODE	AGE	LITHOLOGY	Sedimantology/ Stratigraphy	Environment (Lake, Waterfall, etc.)	Volcanism/ magmatism	Economical Geology (gemology, etc.)	Structural Geology (fault, fold, etc.)	Erosive Shapes (Geomorphology)	Meteoric Events	Continent/Ocean scale Structures	Bathymetric Env. (shelf, ect.)	History and Culture (Archeo., Etnog.)	Natural Aesthetics	Infrequency	Sensitivity	Scientificity	AVERAGE SCORE/4	Regional Importance	National Importance	International Importance	IMPORTANCE SCORE	Chart 20.1 + Chart 20.2	Sustainable Protection and Controlled Use Area (C)	Qualified Natural Protection Area (B)	DEFINITELY PROTECTION AREA (A)
JGİB-1	Precambrian	Gneiss, Schist			X		X						6	6	6	8	6	1	2		3	**9**		B	
JGİB-2	U.Paleozoic	Metagranite			X		X						8	10	8	10	9	1	2	3	6	**15**			A
JGİB-3	Precambrian	Schist			X		X						6	6	6	8	6	1	2		3	**9**		B	
JGİB-4	U. Cretaceous	Peridotite			X								6	5	5	4	5	1			1	**6**	C		
JGİB-5	Trias.-L. Juras.	Metavolcanite	X										6	5	5	4	5	1			1	**6**	C		
JGİB-6	U. Senonian	Flysch	X										6	5	5	4	5	1			1	**6**	C		
JGİB-7	Eocene	Continental clastic	X										6	5	5	4	5	1			1	**6**	C		
JGİB-8	L-M. Eocene	Volcanite/Sed. rocks	X										6	5	5	4	5	1			1	**6**	C		
JGİB-9	L. Permian	Limestone, marble	X										6	5	5	4	5	1			1	**6**	C		
JGİB-10	U. Permian	Limestones	X										6	5	5	4	5	1			1	**6**	C		
JGİB-11	Precambrian	Biotitic metagranite			X								6	5	5	4	6	1	2		3	**9**		B	
JGİB-12	Quaternary	Basalt, ignimbrite	X										6	5	5	4	4	1			1	**6**	C		
JGİB-13	Paleozoic	Gneiss, Schist			X								6	5	5	8	6	1	2		3	**9**		B	
JGİB-14	Precambrian	Metagranite			X								8	10	8	10	9	1	2	3	6	**15**			A
JGİB-15	Paleozoic	Amphibolite			X		X						8	10	8	10	9	1	2	3	6	**15**			A
JGİB-16	Quaternary	Travertine	X										6	5	5	4	5	1			1	**6**	C		
JGİB-17	Quaternary	Scorian deposits	X										6	6	6	8	6	1	2		3	**9**		B	
JGİB-18	Quaternary	İncekaya Tuff cone	X					X					10	10	10	10	10	1	2	3	6	**16**			A
JGİN-1	Quaternary	Nemrut Camels	X					X					8	10	8	10	9	1	2	3	6	**15**			A
JGİN-2	Quaternary	Pyroclastic debris	X										6	6	6	8	6	1	2		3	**9**		B	
JGİN-3	Quaternary	Rhyolitic lava flow			X								6	6	6	8	6	1	2		3	**9**		B	
JGİN-4	Quaternary	Nemrut Caldera			X								10	10	10	10	10	1	2	3	6	**16**			A
JGİN-5	Quaternary	Post-caldera freatom. deposits	X										6	6	6	8	6	1	2		3	**9**		B	
JGİN-6	Quaternary	Post-caldera rhyolitic lava			X								6	6	6	8	6	1	2		3	**9**		B	
JGİN-7	Quaternary	Maar crater			X								6	6	6	8	6	1	2		3	**9**		B	
JGİN-8	Quaternary	Steam pipe			X								6	6	6	8	6	1	2		3	**9**		B	
JGİN-9	Quaternary	Ilığ Lake		X									6	6	6	8	6	1	2		3	**9**		B	
JGİN-10	Quaternary	Nemrut Crater Lake		X									10	10	10	10	10	1	2	3	6	**16**			A
JGİN-11	Quaternary	Kantaşı (Bloodstone)			X								10	10	10	10	10	1	2	3	6	**16**			A
JGİN-12	Quaternary	Nemrut Opening Crack-1			X								10	10	10	10	10	1	2	3	6	**16**			A
JGİN-13	Quaternary	Nemrut Opening Crack-2			X								10	10	10	10	10	1	2	3	6	**16**			A
JGİS-1	Quaternary	Baking Zone			X								8	10	8	10	9	1	2		3	**12**			A
JGİS-2	Quaternary	Rhyolitic Obsidian			X								6	6	6	8	6	1	2		3	**9**		B	
JGİS-3	Quaternary	Aygır Maar		X									10	10	10	10	10	1	2		3	**13**			A
JGİS-4	Quaternary	Blocky Ash Flow	X										6	6	6	8	6	1	2		3	**9**		B	
JGİS-5	Quaternary	Dacitic Dome			X								6	6	6	8	6	1	2		3	**9**		B	
JGİS-6	Quaternary	Süphan crater			X								10	10	10	10	10	1	2	3	6	**16**			A
JGİS-7	Quaternary	Trachytic lava			X								6	6	6	8	6	1	2		3	**9**		B	
JGİA-1	Quaternary	Recent Lake Dep.	X										6	6	6	8	6	1	2		3	**9**		B	
JGİA-2	L. Miocene	Fossil cemetery	X										8	10	8	10	9	1	2		3	**12**			A
JGİA-3	U. Cretaceous	Peridotite			X								6	6	6	8	6	1	2		3	**9**		B	
JGİA-4	Quaternary	Tufa deposits	X										10	10	10	10	10	1	2	3	6	**16**			A
JGİA-5	Quaternary	Travertine channel			X			X					10	10	10	10	10	1	2	3	6	**16**			A
JGİA-6	Quaternary	Microbialitic formations									X		10	10	10	10	10	1	2	3	6	**16**			A
DELİKTAŞ	Quaternary	Travertine	X					X					10	10	10	10	10	1	2	3	6	**16**			A

*ProGeo (1998) Geosite Classification Chart

** "Regulation on Procedures and Principles Regarding the Determination, Registration and Approval of Protected Areas" published in the Official Newspaper No.28358 in 19.07.2012 with the article 13/A of Decree Law (KHK) number 644 and the Law Number 2863.

appropriate information and training will be provided for each of the local stakeholders.

9. The efforts will be made to educate and train the guides who will work in the geopark.

10. Considering the determined georoutes of geosites in the geopark, the security and logistics protocols will be prepared, geoprotection conditions will be determined and necessary documents will be provided to local institutions that will follow this.

11. The participation of Tour Operators operating in the region in the geopark management processes will be ensured, and the geopark will be declared as national and then as international destination without losing time.

12. The transportation - accommodation opportunities of the geopark visitors have been clearly revealed and the accommodation opportunities have been increased by local investors, especially in Tatvan.

13. In order to ensure the participation of the actors that produce ethnographic value within the scope of the local economy in the geopark management processes, the relevant expert groups will be provided for training.

14. It is recommended to certify local and authentic flavors, carry out patent studies, determine the hygiene standards at provincial level, discuss the standards to be used in flavor stations to be established in the medium and long term, and provide training, and communicate with some organizations such as the "Slow City".

As a result, the Nemrut - Süphan proposed geopark is ready to be declared as a "National Geopark" as soon as the above suggestions are fulfilled based on the completed inventory studies with a wide variety of geosite assets, rich natural and cultural heritage elements. During the management stage, when the application preparation processes are followed, the deficiencies are eliminated and the standard studies foreseen by UNESCO are carried out, it will be possible to apply for participation in the Global Geopark Network (GGN).

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