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EVALUATION OF THE RECREATIONAL POTENTIAL OF MOUNT AĞRI (ARARAT) NATIONAL PARK

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Abstract

National parks provide settings for recreation and tourism activities. Mount Ararat is one of the well-known sources of life and landscape on earth with its scientifically valuable geological formations, natural life settings, historical ruins, perfect volcanic cone and it functions as a habitat for a great variety of plants and animals. Besides its essential recreational and ecological services, the mountain has a cultural and spiritual heritage. Despite all these valuable characteristics, there have been quite a few studies on Mount Ararat's recreational sources and their use. For this reason, "Gülez Method" which was developed by Gülez (1990) was used to determine the recreational potential of Mount Ararat. This study examines the park's recreational potential by analyzing its landscape value, climatic value, accessibility, recreative convenience, and negative factor indicators through Gülez Method in order to help decisionmakers make long-term plans. According to the analysis results, Mount Ararat was found as a high-level recreation setting with a rate of 63%. Recommendations and implications were discussed. This study can give managers useful information to plan and design recreational settings that support sustainability in the national park.

Keywords*:* Recreation potential, Gülez Method, Mount Ararat, Ağrı Dağı, Turkey

1. INTRODUCTION

Recreation is simply defined as "experiences and activities chosen and pursued by the individual in his/her free time" (Ap,1986). People might have touristic experiences and might do activities in both indoor and outdoor environments. However, since people spend most of their time in indoor environments, they show tendency to do outdoor activities especially natural environments are preferred such as nature parks, national parks and protected areas. These environments are preferred at different time intervals and for different purposes depending on factors related to the area: accessibility, ease of use, and recreational opportunities that are given in that area.

The popularity of outdoor recreation and tourism activities continues to increase around the world. National parks provide people with settings to do such activities and receive 8 billion visits annually (Balmford et al., 2015). Mountain environments are considered to be crucial outdoor recreation settings in terms of their natural landscape, scenery and a wide range of activities, from hiking to climbing a challenging mountain summit. At first, people used mountains to herd their animals, to determine the geographical borders, and to do various scientific research (Nunn,1987). By time, especially in the 19th century, they began to attract the attention of those wealthy and foreign communities who wanted to see the landscape during summer seasons (Burton,1995). Particularly after the end of the 19th century, when the first national parks around the world were declared to

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be “protected area”, the population mobility in these areas has increased (Koç & Soykan,2018). Although people have been visited both for recreational and scientific purposes throughout the 20th century, particularly after the 1990s, mountains have attracted the masses' attention.

There are many mountains in different geographical regions globally, whose names have gained legendary, sacred meanings (Yulu,2019). The main factor making these mountains relatively more attractive than others is that they have various distinctive qualities (Kumar,2014) and many peaks with recreational potential that are regarded as sacred in global and regional senses in different locations of the world. Therefore, the growing popularity of outdoor recreation and tourism in natural settings has brought the need for the existence of effective management strategies and practices (Kienast & Degenhardt,2012;Surová & Pinto-Correia,2016). Outdoor recreation and tourism management strategies and techniques involve different aspects to be considered (e.g., soil, vegetation, water, air, wildlife, historical/cultural resources, accessibility, landscape, climate, scenery, trails, campsites, attraction sites, roads/ parking lots, safety) (Manning,2011) and it is essential to support the sustainable management decision-making process. Sustainable management should observe the recreational potential of the area. Useful information is needed to identify the potential of recreation settings effectively. First, managers and plannlers should know about the recreational demand in the area and what type of recreational activities would be appropriate for the area, then decide where and how these activities should take place. For this reason, it is necessary to know some criteria in the selection of recreation areas and some factors affecting the selection (Gülez,1983). These criteria, according to Gülez (1983), are (1) the natural environment must have a recreational use potential, (2) the area has to allow different recreational activities and has sufficient size of land for these activities, (3) there should be vegetation cover in the area (woodland, shrubs and bushes, meadows etc.), (4) topographical structure of the natural environment, bedrock and soil characteristics should be suitable for recreational uses, (5) the area should be close to main access roads and settlements, (6) infrastructure facilities such as road, water and electricity can be brought easily, (7) the area should have a convenient infrastructure, (8)there should be opportunities to increase recreational activity in the close surroundings, (9) the socio-economic structure of the people living in the region should be at a level that will create recreational demand.

In order to determine the recreational potential of the areas subject to recreational activities, various models have been developed by researchers according to the geographical, economic and socio-cultural features of the recreation area. These are; Methods for Measuring the Demand for Outdoor Recreation (Clawson,1959); Assessment of Demand for Outdoor Recreation Resources (Knetsch,1969); Recreation Opportunity Spectrum (ROS) (Clark and Stankey,1979); Outdoor Recreation Supply and Demand (USDA Forest Service, 1997); Benefits-Based Management (Lee and Driver, 1999); National Survey on Recreation and the Environment (NSRE, 2002). "Methods for Measuring the Demand for Outdoor Recreation" by Clawson (1959) adapted to Turkey's conditions as "Determination of Outdoor Recreation Potential" by Gülez (1980). The Gülez method, which will also be used in this study, has been applied in various places in Turkey to measure the recreational potential.

Although the Gülez method looks like outdated, it is extensively used today because it was developed in accordance with the conditions of our country and explained as a method that reveals the potential of recreation areas and the method still offers practical solutions for local administrators and practitioners (Yılmaz et al., 2009; Çetin &Sevik, 2016; Çelik et al., 2016; Çalışkan & Çelik,2017; Çetin, Üzümcü & Çelik, 2018; Gül & Yılmaz,2019; Bozkurt,2019; Ayhan, 2019; Akten,2003; Dal & Karayılmazlar, 2019; Özçalık &Kumru, 2019;Bayramoğlu &Yurdakul, 2020; Demirkan & Erzurumlu, 2020). In general, the method is preferred to identify potential areas of recreational settings in Turkey. This method evaluates many indicators within the scope of determining the recreational potential of an area that include (i) the size of the area, (ii) vegetation and land cover, (iii) landscape value (sea, lake, river, surface condition, visual quality, etc.,), (iv) climate value (Temperature, precipitation, windiness, insolation), (vi) accessibility (the distance to the center). For instance, the research study of Çelik et al. (2016) "Outdoor Recreation Potential of Golyazi Village of Bursa Province" was based on Gülez method. They found the recreational potential of Bursa to be around 72 % that represents a high level. Demirkan and Erzurumlu (2020) determined the recreational potential of Niğde Atatürk city Forest using Gulez (1990). They found the recreational potential of it 55.8% that represents a moderate-level potential. Recent technological development of GIS technology represents a rapid and easy evaluation of recreational potential (Kliskey, 2000; Gül et al., 2006; Tyrväinen et al., 2008; Çetin and Sevik, 2016). GIS helps in determining the recreational potential of an area. On the other hand, it

analyses the site's different climate properties using raster (grid) data. There are various types of approaches adopted to determine the recreational potential of any area and Gülez (1992) is one of these methods.

In this study, Mount Ararat National Park will be examined in order to determine the recreation potential of it. Mount Ararat, a stratovolcano (5137 m), is an important source of outdoor recreation and tourism activities due to its geomorphology (Azzoni et al. 2017) and its varying climate conditions at different elevations. Mount Ararat, which is located at a geo-politically, geo-strategically, and geo-economically significant area, on the border of Iran, Armenia, and Azerbaijan (Naxçivan), was declared as a National Park area in 2004 because it had an important landscape and natural life sources. Furthermore, being one of the world's rare mountains that require no technical equipment for climbing, Mount Ararat provides several opportunities for different recreational activities.

2. STUDY AREA

Mount Ararat is a passive strato-volcano of a composite, calc-alkaline nature (Sarıkaya, 2011). It is located in the easternmost part of Turkey, just next to Iran, Armenia, and Azerbaijan (Naxçivan). It is not only among the highest 50 mountains of the world but also among the most known flawless volcanic cones around the world, such as Klyuchevskaya Sopka in Russia (4.500 m), Mount Rainier in the USA (4.392 m), Mount Fuji in Japan (3.776 m) and Mount Mayon in the Philippines (2.447 m) (Figure 1).

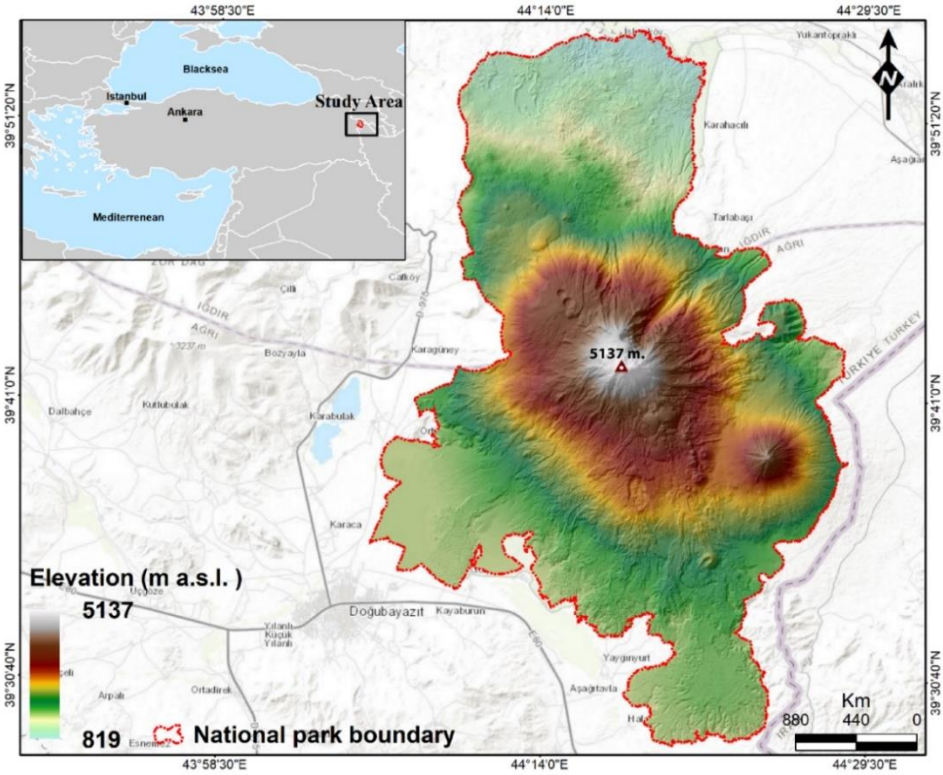

Figure 1- Location of study area.

Mount Ararat was declared a National Park area by the Decree 2004/8078 of the Council of Ministers, which came into effect on the 17th of November 2004, following its publication on the Official Gazette No. 25643. It is, which has been granted the status of being among "Areas Protected by Special Laws" by the General Directory of Nature Protection and National Parks, one of the essential sources of landscape and natural life in the Middle East, Caucasus, and its immediate vicinity. The square measure of the National Park Border is 87.807 hectares. Great Ararat reaches an elevation of 5.137 m. at the same time, Little Ararat reaches 3.883 m. in height.

The symbolic meaning of Mount Ararat for different nations and religions originates in the belief that it is the resting place of Noah's Ark (Berlitz,1987;Kaya,2020). For this reason, Mount Ararat has varying names in different languages such as Ararat in English, Masis in Armenian, Koh-i Nuh in Persian, Je-bel-ul Haris in Arabic, Agri Dagi in Turkish, and Çiyayê Agirî in Kurdish (Sarikaya,2012).

There have been numerous attempts to climb Mount Ararat throughout history (Rubruck,1900). The

first person to climb the mountain, which Marco Polo defines as "impossible to be climbed because of the presence of snow on its peak even in summers (Brooks,1896), was the German naturalist Friedrich Wilhelm Parrot, who managed to climb it on the 27th of September 1829 (Parrot,1846). Many people of different nationalities after Parrot's successful attempt climbed the peak of Mount Ararat (such as those from Russia, England, Germany, and the USA) (Lynch,1897). While some of these climbing attempts made for scientific purposes, most of them were parts of adventure travels (Yulu,2019).

The rugged topographic landform of Mount Ararat developed due to a geologic and geomorphologic process made the establishment of settlements difficult. For this reason, there exist no settlements on Mount Ararat with one exception, which is Yenidogan Village (Ahuri), where natural environmental conditions are convenient for settlement.

3. MATERIAL AND METHOD

Geographic Information Systems (GISs) were used to create the necessary sub-data used in the study. Various data sources were used during the study, and ArcGIS 10.x software was employed for preparing the data. These data sources were Digital Elevation Model (DEM), Corine Land Use/Cover, and grid-based climate raster data. Within this scope, DEM was obtained by digitizing the General Command of Cartography's topographical maps with a scale of 1:25000. CORINE LULC (Land use /Land cover) land use data were used at a resolution of 100 m. CORINE data were downloaded from https://land.copernicus.eu/pan-european/corine-land-cover/clc2018 for free. During the creation of the climate data, grid-based data were obtained from https://www.worldclim.org/data/worldclim21.html. For climate data, June, July, and August were considered. During the interpretation of data, images seen in Figure 2 were used. The current borders of Mount Ararat National Park were provided by the General Directorate of National Parks operating under the Ministry of Agriculture and Forestry.

"Gülez Method" which was developed by Gülez (1990), was used for determining the recreational potential of Mount Ararat National Park. This method is based on an empirical formula which enables the determination of inner-forest recreational potential. In the formula, the elements which need to be evaluated during the determination of recreational potential were defined as *landscape value, climatic value, accessibility, recreative convenience*, and *negative factors*, and the maximum values they could have were determined (Table 1). According to the formula, landscape value (L) was assessed to be at a percentage of 35%, which is more than the rate of all other elements. During the landscape value analysis, various characteristics such as size, flora, topographic nature, and visual quality of the land and historical and cultural characteristics and wildlife's existence, which could increase the recreational potential, are taken into consideration.

Table1- Formula items and scores (Gülez, 1990).

Formula: L + C + A + RC + NF = % RP	
Items	**Maximum Score**
Landscape Value (L)	35
Climate Value (C)	25
Accessibility (A)	20
Recreative Convenience (RC)	20
Negative Factors (NF)	0 (Minimum -10)
Recreation Potential (%RP)	100

To determine the climate value (C), which has the second-highest percentage with a rate of 25% due to the significance of climatic conditions in recreational activities, factors such as temperature, precipitation, insolation, and windiness were graded. As both accessibility (A) and recreative convenience (RC) were deemed to increase the recreational potential, the same percentage, 20%, was assigned to both factors in the formula. In grading the accessibility, factors such as the region's touristic significance, the existence of any settlements nearby, and transportation (bus, minibus, lift), and the duration of travel were considered. During the determination of the recreational potential, factors such as picnic sites, accommodation, water installations, WC, parking lot, and security in the area, which had a positive effect on the recreational potential, were called recreative convenience as a whole. Factors such as air and water pollution, noisiness, dilapidation, and insecurity were determined as negative factors, and they were graded with a minus (-) value. During the grading process, this minus value was subtracted from the total value. Negative factors (NF) could be graded with a maximum grade of -10.

Grades obtained from the assessments made were to determine the recreational potential of the area, again, by the evaluation scale defined in Gülez method (Table 2).

Table 2- Recreation Potential Scale (Gülez, 1990).

Recreation Potential	Very Low	%30 >
	Low	% 30 - % 45
	Medium	% 46 - % 60
	High	% 61 - % 75
	Very High	% 75 <

4. RESULTS

As a result of the analysis made using the data obtained, the recreational potential of Mount Ararat National Park was determined through the "Inner-forest Recreational Potential Determination" method developed by Gülez (1990). The elements of the formula developed (landscape value, climate value, accessibility, recreative convenience, and negative effects) showed the recreational potential of the national park to be 63 % (Table 3).

Table 3- Evaluation of Mount Ağrı (Ararat) National Park recreation potential

	Formula Items and Features	Maximum Score	Description		Evaluation Results
Landscape Value (L)	Land Size	4	10 ha <	4	**4**
			5-10 ha	3	
			1-5 ha	2	
			0.5-1 ha	1	
	Vegetation Cover	8	Woodland, shrubs & bushes, meadows	7-8	**5**
			Only woodland and meadows	6-7	
			Shrubs & bushes, meadows and slightly woodland	5-6	
			Meadows and slightly woodland	4-5	
			Only shrubs & bushes, meadows	3-4	
			Shrubs & bushes and slightly woodland	3-4	
			Meadows, slightly shrubs & bushes	2-3	
			Only meadows	1-3	
	Adjacency of Sea, Lake, Stream	8	Sea Shore	7-8	**5**
			Lakeside	6-7	
			Stream coast	4-5	
			Creeks	1-4	
	Surface	5	Plain	5	**3**
			Slightly wavy	4	
			Slightly sloped	3	
			A bit of rough	2	
			Medium rough	1	
	Visual Quality	4	Panoramic views	3-4	**4**
			Vistas	2-3	
			Visual aesthetic value	1-3	
	Other Features	6	Natural monument, waterfall, caves, historical and cultural values, wildlife, birds and so on.	1-6	**6**
Climate Value (C)	Temperature	10	Summer months average (°C) (June,July,Aug) 16-17, 18-19, 20-21, 22-23, 24-25, 34-33, 32-31, 30-29, 28-27, 26-25 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	1-10	**5**
	Precipitation	8	Summer months average (mm) (June,July,Aug) 50-100- 150-200-250-300-350-400 8, 7, 6, 5, 4, 3, 2, 1	1-8	**8**
	Sunshine	5	Summer months average of cloudness 0-2, 2-4, 4-6, 6-8, 8-9 5, 4, 3, 2, 1	1-5	**4**
	Windiness	2	Summer months average of wind speed 1m/sec > 1 1-3 m/sec 2	1-2	**2**

Accessibility(A)	Touristic significance of the region	4	Mediterranean, Aegean, Marmara coast	3-4	**2**
			Black Sea coast	2-3	
			Important road routes, priority regions in tourism	1-3	
	Existence of a town with at least 100.000 population	5	Up to 20 km distance	4-5	**5**
			Up to 50 km distance	3-4	
			Up to 100 km distance	2-3	
			Up to 200 km distance	1-2	
	Accessing time (from the nearest town with at least 5000 population)	4	Up to 1h walking distance or 0-1/2h by vehicle	4	**4**
			1/2- 1h by vehicle	3	
			1-2h by vehicle	2	
			2-3h by vehicle	1	
	Type of accessing (apart from taxi and private vehicles)	4	Ability to walk on foot or finding a vehicle at any time	3-4	**3**
	Other conveniences in accessing	3	Finding vehicle at certain times	1-3	**1**
			Cable car, ferry etc.	1-3	
Recreative Convenience (RC)	Picnic Facilities	4	Picnic table, barbecue etc.	1-4	**1**
	Useable water condition	3	Water for drinking and other uses	1-3	**2**
	Overnight Facilities	2	Permanent overnight facilities	2	**2**
			Camping opportunities with/without tent	1-2	
	Restrooms	2	According to the qualifications	1-2	**0**
	Parking Lots	2	According to the qualifications	1-2	**0**
	Retails	2	According to the qualifications	1-2	**0**
	Watchmen/rangers	2	Permanent	2	**0**
			Only weekends	1	
	Others	3	According to the qualifications beaches, sports facilities, etc.	1-3	**0**
Negative Factors (NF)	Air Pollution	-3	Extent of pollution	-1/-3	**0**
	Safety Condition	-2	Security level	-1/-2	**-2**
	Water Pollution	-1	Extent of pollution for sea, lake and streams	-1	**0**
	Neglected	-1	Not enough maintenance	-1	**-1**
	Noise	-1	Traffic, crowding etc.	-1	**0**
	Others	-2	Quarries, construction, factory ruins etc.	-1/-2	**0**
Recreation Potential (%RP):					**63**

4.1. Landscape Value (L)

The study area was first examined in terms of its Landscape Value (L). To determine the landscape value, factors such as the size, flora, topographic nature, and visual quality of the land, whether it is waterfront or not, as well as other attributes (such as the existence of wildlife, natural monuments, or its historical values) were taken into consideration.

Within this context, Mount Ararat National Park was graded with 4 points because it has an area of 87.807 ha and a field size of more than 10 ha (Figure 2).

Mount Ararat National Park is located in the Iran-Turan floristic region. This region is covered with the steppe flora in general. There are various plant species, such as herbaceous and woody plants, including even endemic and vulnerable plants at risk. There are also Alpine meadows in places with high altitudes. Mount Ararat has a wide range of plant species with high visual attraction, mostly because of the precipitation increasing in spring (Photograph a and b).

In different parts of Mount Ararat (especially in slightly woodland nature. It was also graded with 5 points due to Küp Lake's existence and the streams

with varying magnitudes created by melting snow cover (Photograph c).

The existence of Great Ararat and Little Ararat within the National Park boundaries earns the region a panoramic view and a richness in terms of vista (Photograph 2). For this reason, it was graded with 4 points in terms of its visual quality.

The cemetery located in the northern part of Mount Ararat, which has traces of the historical village of Ahuri (Yenidogan with its current name), was declared a protected (archaeological) area (Photograph d). The Russian Barracks located in between Little Ararat and Great Ararat and the ancient settlement ruins in the north-eastern part of the mountain (Korhan Castle) also show that the area is historically and culturally valuable. Besides, there are other attractions, such as waterfalls, morainal lakes, and geomorphological elements. Because of the existence of all these sources, the region was graded with 6 points.

Mount Ararat and its surroundings have a wide variety of wildlife. The region's fauna includes not only land animals such as wolf, bear, fox, coyote, chamois, and rabbit, but also other animals such as eagle, owl, hawk, and partridge.

The surface of the National Park was found to be rough at a low level in consequence of the examination made on the topographical map developed based on the data taken from the Directorate of Nature Protection and National Parks (Figure 3), and the region was graded with 3 points. The *landscape value (L)* was determined to be 27 in total after the grading process.

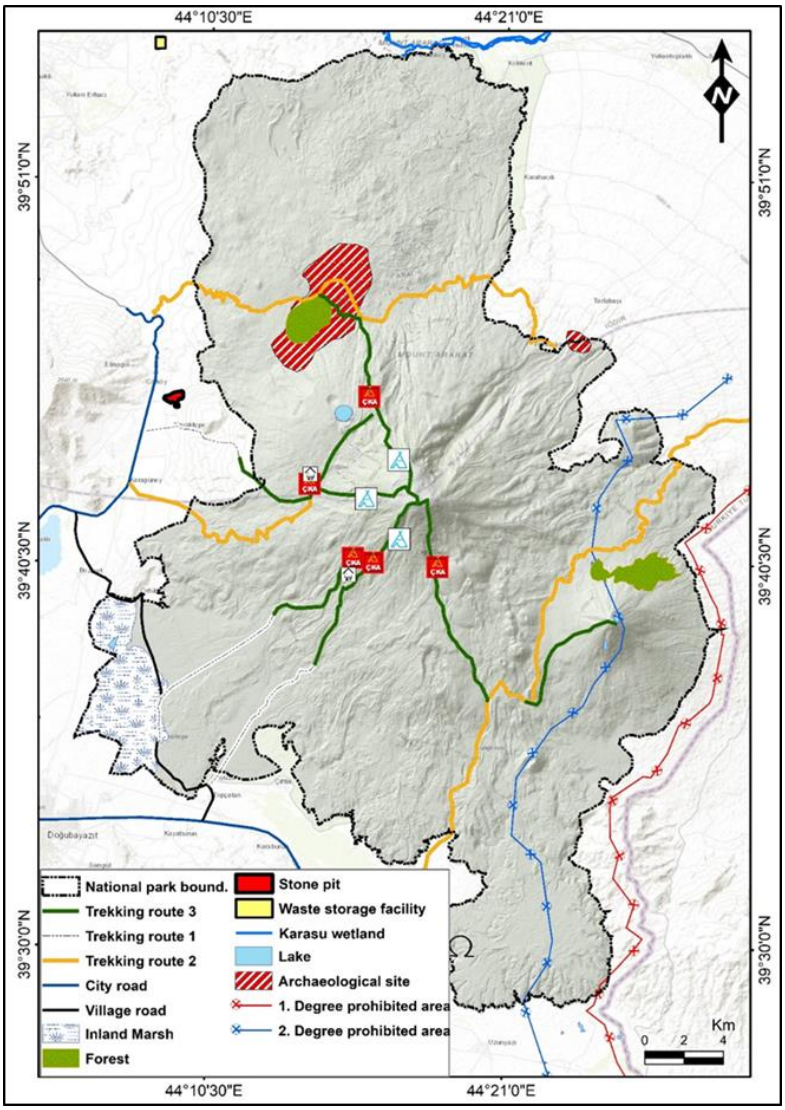

Figure 2- Landscape Value Map of Mount Ağrı (Ararat).

Photograph 1- Photos of Mount Ağrı (Ararat), Source: Adem Yulu

Photograph 2- A view from the peak of Great Ararat, Source: Adem Yulu

4.2. Climate Value (C)

The data provided by meteorological stations around Igdir, Dogubayazit, and Agri were considered during the evaluation of the climate value of Mount Ararat National Park. Factors such as temperature, precipitation, sunshine, and windiness were examined to determine the region's climate value. The

temperature value was set by calculating the average temperature of June, July, and August, which is more convenient for recreational activities. Accordingly, the mean temperature of June (18.9°), July (23.2°), and August (23.0°) was found to be 21.7, and the region was graded with 5 points in terms of climate value (Figure 3).

As for the region's precipitation, when examined based on the average rate during summer, it was calculated as 18.9mm for Igdir, 25.0mm for Dogubayazit, and 26.5 for Agri and as 23.4mm in average, and the region was graded with 8 points. Since the duration of cloudiness in the area is 2.6 days, and the wind speed is 2.1 m/s, the region was graded with 4 points for sunshine and 2 points for wind speed. The *climate value (C)* was, therefore, calculated to be 19 in total.

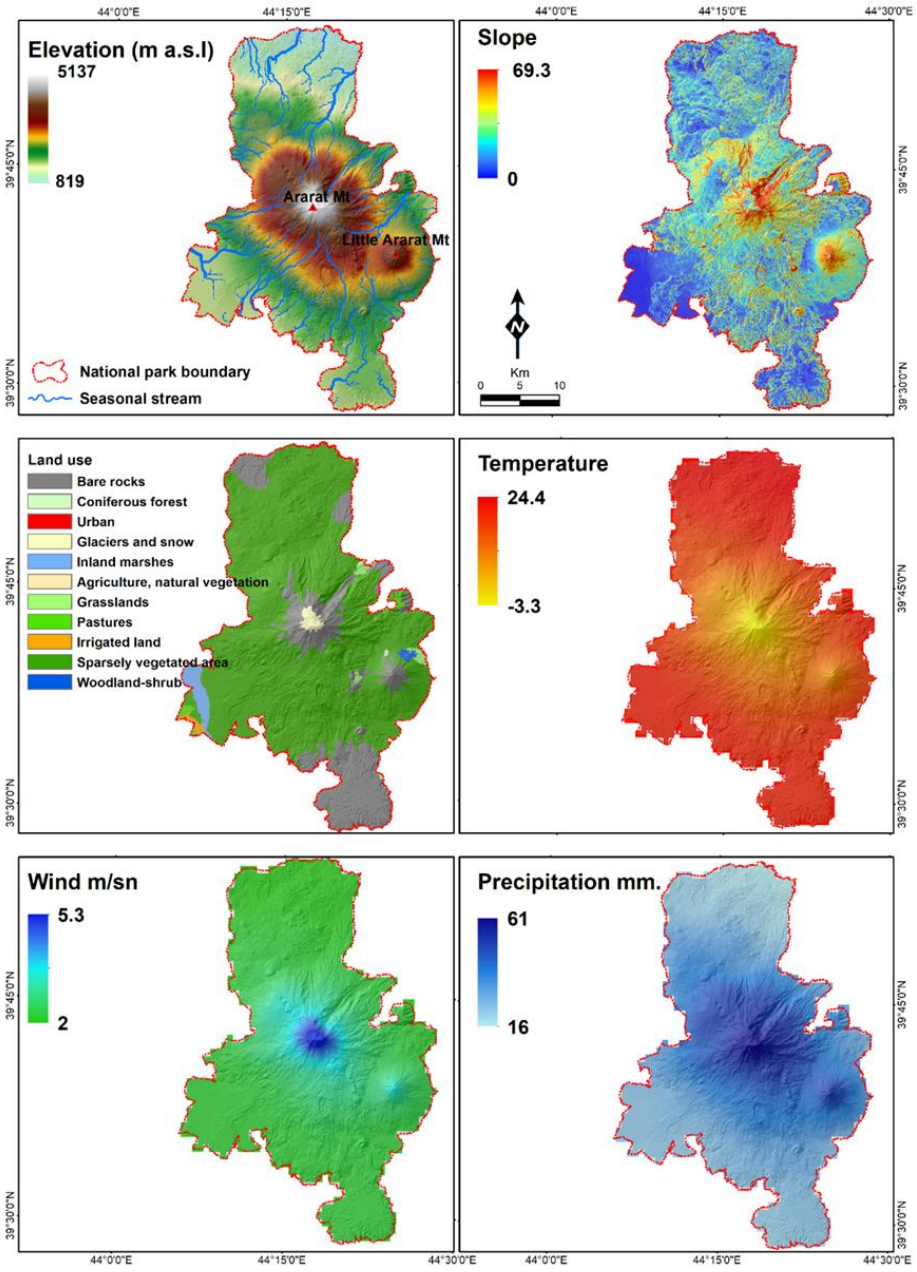

Figure 3- Elevation, slope, land use, temperature, wind and precipitation maps.

4.3. Accessibility (A)

Mount Ararat National Park is located near a place where the borders of Turkey, Armenia, Naxcivan and Iran intersect, and it is within the boundaries of Agri and Igdir provinces. The facts that Igdir province in the Eastern Anatolia Region neighbors three countries and it has a population of over 100.000 and

12 km away from the national park increase the region's recreational potential (Figure 4).

Agri earned the region 2 and 5 points due to the touristic significance of Ishakpasa Palace and its distance to settlements, which was measured as 7 km. Since access to the nearest settlement takes an hour on foot, whereas it takes 0-1/2 by car, the region was graded with 4 points (Photograph 3). It was graded with 3 points because reaching the place on foot is possible and with 1 point because of the lack of transportation at any minute. The total points for *Accessibility (A)* were, therefore, set to be 15.

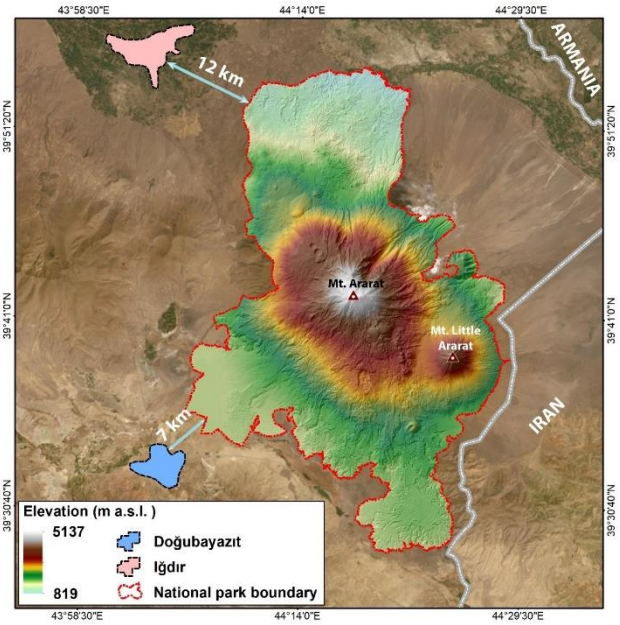

Figure 4- Region's distance to settlements.

Photograph 3- Iğdır / Doğubeyazıt road access, Source: Adem Yulu

4.4. Recreative Convenience (RC)

Having been examined in terms of the existence of recreative equipment within the national park, the region was graded with 1 point because of the lack of picnic tables and sitting areas; with 2 points because of the availability of natural water sources and 2 points due to the existence of opportunities for camping with or without tents even though there is no facility for staying overnight (Photograph 5).

Similarly, Mount Ararat National Park was graded with 0 points due to WC's non-existence and with 0 points for each for the lack of full-time watchman or during weekends and of facilities like sale offices or refreshment facility and car park. For this reason, *Recreative Convenience (RC)* was found to be 5 points.

Photograph 5- Camping area in the southern part of Mount Ağrı (Ararat) (3200 m). Source: Adem Yulu

4.5. Negative Factors (NF)

Visits to Mount Ararat consist of recreational and touristic activities. Recreational activities are mostly classic (traditional) mountaineering activities which is climbing in different styles. All kinds of activities have carried out mainly in the summer season due to climate conditions of the region (Yulu, 2020). Thus, environmental problems occur during the periods of intensive useage, especially on the South route of climbing.

Mount Ararat is located at a place where it is possible for those who visited the area for recreational activities to face various security problems from time to time. Sometimes some recreational activities within the national park require permission due to security reasons. Another problem is pollution caused by the waste in camping areas located at places between 3.200 m and 4.200m in elevation and on the southern side of the mountain where peak climbing is popular (Photograph e and f).

Small heaps of waste are caused both by the wastes left by tourists visiting the camping areas located at an elevation of 3200 m and by the neglect of local guides. As a result of the field survey conducted, the site was neglected, and for this reason, it was graded with -3 points in terms of negative factors (NF).

5. CONCLUSION

Through "Gülez method," which makes the determination of recreational potential based on a mathematical formula possible, landscape value, climatic conditions, accessibility and recreative convenience of as well as the negative factors about the region were determined. According to the formula, the landscape value was evaluated with a percentage of 35%, which is higher than all other factors at a significant level. During the landscape value analysis, various characteristics such as the size, flora, topographic nature, and visual quality of the land and historical and cultural factors and the existence of wildlife, which could increase the recreational potential, were taken into consideration.

When examined in terms of its landscape value, the study area was graded with 4 points because it has an area of more than 87.000 ha. It was graded with 4 points for its visual quality, with 3 points for its surface with low-level roughness, with 6 points for its historical and cultural value (Yenidogan village, the Russian Barracks and Korhan Castle) and its other characteristics, with 5 points due to its flora of meadowy and woody nature; and finally, with 5 points due to streams created by melting snow. As a result, the Landscape Value (L) of the region was 27 in total.

Mount Ararat National Park, which includes different geographical formations, was graded with 19 points based on the criteria used for determining the Climate Value (C) due to topographical conditions varying in short distances and especially for the convenience of the region in terms of temperature and precipitation.

Accessibility is no doubt vital in the development and expansion of outdoor recreation activities. Since the existent attraction means nothing without accommodation and transportation opportunities, it is necessary and highly essential to develop and enhance transportation (Kapan,2018). Based on the criteria created through Gülez Method, the region's accessibility was found to be efficient for outdoor recreational activities because of the existence of Igdir and Agri provinces, of the possibility to reach touristic places via highway, as well as of the presence of an airport. Consequently, the national park was graded with 15 points in terms of its Accessibility (A).

Finally, when the region was examined in terms of its Recreational Convenience (RC), it was graded with 5 points because of the need for attempts to remedy the deficiencies such as lack of facilities for accommodation and picnic, as well as the lack of car parks, buffets, and WC. Because the area was found to be neglected, 3 points were subtracted from the total points.

To sum up, the results obtained from Gülez method showed that Mount Ararat has a potential of 63% in terms of its recreational sources. This rate might be concluded as an efficient. It is also necessary to point out that scoring the accommodation element, one of the critical sources of visitor demand, with 2 points in future studies and scale-developing methods would not be efficient or convenient. Since outdoor recreational activities are sustainable, making the necessary investments in this region would be an excellent benefit. Mountains in general have been used for winter sports such as skiing, snowboarding, tubing in Turkey (Bazın & De Tapia,2015), however, Mount Ararat has not yet developed for these winter activities (Yulu, 2020).

Climate change (global heating) is also known to affect these types of areas. (Yavaşlı et al., 2015) For instance, it is a widely known disturbing fact that the "glacial areas" worldwide have been decreasing at a rate of 29% in recent years (Sarıkaya, 2012).

Landforms and continental climate conditions have enabled the development of recreational activities especially "peak climbing" during summer times on the southern slope of the mountain. Similarly, many unique natural places like Mount Ararat are known to have been damaged by the pressure put by the ever-increasing number of tourists. This poses a significant threat to Mount Ararat, which needs to be protected and handed down to the next generations with its numerous natural sources nationally and internationally. Areas of recreational activities should be managed through sustainable methods, keeping in mind that they are ever-changing and developing spaces.

Managers must ensure that visitors have as minimal impact as possible. Thus, it is necessary to gather information on the use levels and assess the visitor's norms and attitudes during their visits. Getting such normative information from visitors will allow managers to focus their actions more effectively because norms are used to explain the limits of acceptability. Next, the development and application of a visitor management framework are necessary to maintain the national park sustainably.

In addition, the main reason for Mount Ararat's not still being one of the preferred mountain tourism destinations, even though it is seen as a source of landscape and natural life (Demirel & Pouya,2020;Doğanay,2003;Kaya,2016;Şimşek & Alim,2009;Bilgili,2009;Güner,2000) and it has a high recreational potential, is the fact that security-related problems on and around Mount Ararat since the 1990s

have prevented the implementation of "plans at regional or local scale to develop mountain tourism". Conditions to provide public and private entrepreneurs with confidence have not been totally established (Yulu,2020).

REFERENCES

Akten, M. 2013. Isparta İlindeki Bazı Rekreasyon Alanlarının Mevcut Potansiyellerinin Belirlenmesi, *Süleyman Demirel Üniversitesi Orman Fakültesi Dergisi*, 2,115-132.

Ap, J.1986. Recreation trends and implications for government. In R. Castle, D. Lewis & J. Mangan (eds) Work, Leisure and Technology. Melbourne, Longman Cheshire,167-83.

Ayhan, Ç. K.2019. Ayazmapınarı Tabiat Parkı'nın (Bayramiç, Çanakkale) Rekreasyonel Potansiyelinin Belirlenmesi Üzerine Bir Araştırma, *ÇOMÜ Zir. Fak. Dergisi* 7 (1),219-228.

Azzoni, R, S., Zerboni,A., Pelfini, M., C,A,Garzonio., Cioni, R., Meraldi, E., Smiraglia, C., Diolaiuti, G, A. 2017. Geomorphology of Mount Ararat/Ağri Dağı (Ağri Dağı Milli Parki, Eastern Anatolia, Turkey), *Journal of Maps*, 13:2, 182-190.

Balmford, A., Green, J.M., Anderson, M., Beresford, J., Huang, C., Naidoo, R., Walpole, M., Manica, A. 2015. Walk on the wild side: Estimating the global magnitude of visits to protected areas. *PLoS Biol.*

Bayramoğlu, E., Yurdakul, N, M. 2020. Trabzon 100.Yıl Parkı ve Çevresinin Rekreasyon Potansiyelinin Saptanması. *Bartın Orman Fakültesi Dergisi*, 22 (1),38-46.

Bazın, M., De Tapia, S. 2015. *Türkiye Coğrafyası*, İletişim Yayınları, İstanbul.

Berlitz, C. 1987. *The Lost Ship of Noah*. Putnam Press, New York.

Bilgili, M. 2009. *Türkiye'nin doğusunda Gemiyi ara, Ararat'ın İtibarı*, Bilgili Ajans Yayınları, İstanbul.

Bozkurt, S. G.2019. Gürün (Sivas) İlçesi Gökpınar Gölü ve Çevresinin Rekreasyon Potansiyelinin Belirlenmesi, *Türkiye Peyzaj Araştırmaları Dergisi*, 2:1,29-39.

Brooks, N.1898. *The Story of Marco Polo*, The Devinne Press, New York.

Burton, R. 1995. *Travel Geography*, Longman.

Clark, R.N., Stankey, G.H.1979. *The Recreation Opportunity Spectrum:A Framework for Planning*, Management and Research. General Technical Report.

Clawson, M.1959. *Methods of Measuring The Demand for and Value of Outdoor Recreation*. Resources for the Future, Washington DC.

Çalışkan, H., Çelik, A. 2017. Bursa İli Mustafakemalpaşa ilçesinin peyzaj değerleri ve rekreasyon potansiyelinin belirlenmesi üzerine araştırma, *Uluslararası Turizm, Ekonomi ve İşletme Bilimleri Dergisi,* 1 (2), 13-22.

Çelik, A., Üzümlü, P.T., Çetin, İ. 2016. "Bursa İli Gölyazı Köyü'nün Açık Hava Rekreasyon Potansiyeli". *Uluslararası Sosyal ve Ekonomik Bilimler Dergisi*, 6 (2),32-40.

Çetin, İ., Üzümcü,T, P and Çelik, A. 2018. Erçek Gölü'nün Rekreatif Turizm Potansiyelinin Değerlendirilmesi. *Uluslararası Peyzaj Mimarlığı Araştırmaları Dergisi*, 2 (1),29-40.

Çetin, M., Sevik, H.2016.Evaluating the recreation potential of Ilgaz Mountain National Park in Turkey. *Environ Monit Assess,* 188:52. DOI 10.1007/s10661-015-5064-7.

Dal, İ., Karayılmazlar, S. 2019. Balamba Tabiat Parkı Açık Hava Rekreasyon Potansiyelinin Değerlendirilmesi, *Ubak Uluslararası Bilimler Akademisi, Uygulamalı Bilimler Kongresi Kitabı*, 55-68.

Demirel, Ö., Pouya, S. 2020. Sürdürülebilir Dağ Yönetimi, Ağrı Dağı Örneği, *Uluslararası Dağcılık ve Tırmanış Dergisi*, 3(1), 1-14.

Demirkan, G.Ç., Erzurumlu, S.G. 2020. According to method of Gülez determination of recreational potential of Niğde Atatürk City Forest. *Journal of Social and Humanities Sciences Research.* 7(52), 986-995.

Doğanay, H. 2003. Ağrı Dağı ve Turistik Önemi, *Doğu Coğrafya Dergisi*, 9,171-179.

Gül, A., Örücü, M.K., Karaca. Ö. 2006. An Approach for Recreation Suitability Analysis to Recreation Planning in Gölcük Nature Park. *Environmental Management* 37, 606–625.

Gül, S., Yılmaz, A. 2019. Samsun Şehri Kıyı Şeridinin Rekreasyon Potansiyelinin Gülez'in Açık Hava Rekreasyon Potansiyelinin Değerlendirilmesi Yöntemi ile Belirlenmesi, *Coğrafi Bilimler Dergisi/Turkish Journal of Geographical Sciences*, 17(2), 318-344.

Gülez, S .1983. Kıyısal Alanların Rekreasyonel ve Turistik Yönden Planlamasında Yeni Bir Yaklaşım. *Dünya Şehircilik Günü Kıyılar Kollokyumu*. Trabzon.

Gülez, S. 1980. Doğu Karadeniz Kıyı Şeridinde Rekreasyon Potansiyelinin Saptanması ve Değerlendirilmesi. *KFÜ Orman Fakültesi Dergisi*, 3(1),105-132.

Gülez, S.1990. Orman İçi Rekreasyon Potansiyelinin Saptanması İçin Geliştirilen Bir Değerlendirme Yöntemi, *İstanbul Üniversitesi Orman Fakültesi Dergisi,* 40 (2),132-148.

Gülez, S.1992. A Method for Evaluating Areas for Natural Park Status, *Environmental Management* 16(6), 811-818.

Güner, İ. 2000. Touristic Potential of Agri Mountain, *Doğu Coğrafya Dergisi*, 4,383-390.

Kapan, K. 2018. Turizm ve rekreasyon faaliyetlerinin ekonomi üzerindeki etkileri: Antalya örneği. *Cografya Dergisi*, 37, 47-56. https://doi.org/10.26650/JGEOG2018-0004

Kaya, F. 2016.Ağrı Dağı'nın Turizm Potansiyeli ve Değerlendirme Durumu, *Marmara Coğrafya Dergisi,* 34, 217-229.

Kaya, F. 2020. Ağrı Dağı ve Nuh'un Gemisi, Bilgin Kültür Sanat Yayınları, İstanbul.

Kienast, F., Degenhardt, B. 2012. GIS-assisted mapping of landscape suitability for nearby recreation. *Landscape and Urban Planning*, 105 (4), 385-399.

Kliskey, A.D. 2000. Recreation terrain suitability mapping: a spatially explicit methodology for determining recreation potential for resource use assessment. *Landscape and Urban Planning,52,*33-43.

Knetsch,J.L. 1969. Assessing the Demand For Outdoor Recreation. *Journal of Leisure Research*, 1(1), 85-87. doi:10.1080/00222216.1969.11969713

Koç, Y., Soykan, A. 2018. Koruma Alanlarının Çevresinde Nüfus Hareketleri: Temel Yaklaşımlar, *İnternational Journal On Mathematical Engineering & Natural Sciences*, 2, 1-13.

Kumar.K. 2014. The sacred mountain: Confronting global capital at Niyamgiri, *Geoforum* 54,196–206.

Lee, M.E., Driver, B.L.1999. Benefits-Based Management: A New Paradigm for Managing Amenity Resources. Ecosystem Management: *Adaptive Strategies for Natural Resources Organizations in the 21st Century*, 143-154.

Lynch, H.F.B. 1897. *Mountain Climbing, The Ascent of Mount Ararat*. Charles Scribner's Sons.

Manning, R. E. 2011. *Studies in outdoor recreation: Search and research for satisfaction* (3rd ed.). Corvallis, Oregon State University Press.

National Survey on Recreation and the Environment. 2002.The Interagency National Survey Consortium, Coordinated by the USDA Forest Service, Recreation, Wilderness and Demographics Trends Research Group, Athens. GA and The Human Dimensions Research Laboratory, University of Tennessee, Knoxville, TN.

Nunn, P. 1987. Alpine Climbing. The Climbers Handbook. San Francisco: Sierra Club Books.

Özçalık, M., Kumru, S,N. 2019. Kapiçam Tabiat Parkı'nın Gülez Yöntemine Göre Rekreasyon Potansiyelinin Belirlenmesi. *Turkish Journal of Forest Science*, 3(2):129-141.

Parrot, W. F. 1846. *Journey to Ararat* (Çev: W. D. Cooley). Harper & Brothers, Publshers, New York.

Rubruck, W.1900. *Eastern Parts of the World.* (Çev: Rockhill,W,W.). The Hakluyt Society, London.

Sarıkaya, M, A. 2012. Recession of the ice cap on Mount Ağrı (Ararat), Turkey, from 1976 to 2011 and its climatic significance, *Journal of Asian Earth Sciences*, 46, 190-194.

Sarıkaya, M, A.2011. *Türkiye'nin güncel buzulları. Fiziki Coğrafya Araştırmaları: Sistematik ve Bölgesel*. Türk Coğrafya Kurumu Yayınları, İstanbul.

Surová, D., Pinto-Correia, T. 2016. A landscape menu to please them all: Relating users' preferences to land cover classes in the Mediterranean region of Alentejo, Southern Portugal *Land Use Policy,*54,355-365.

Şimşek, O. Alim, M. 2009. Iğdır İli'nin Turizm Potansiyeli, *Sosyal Bilimler Enstitüsü Dergisi*, 3,1-26.

Tyrväinen, L., Buchecker, M., Degenhardt, B.,Vuleti, D. 2008.Evaluating the economic and social benefits of forest recreation and nature tourism, *European Forest Recreation and Tourism,* 35-63.

USDA Forest Service (1997). *Recreation Supply and Demand Report for the Daniel Boone National Forest,* Document of the Analysis of the Management Situation For The Proposed Revision of The Land & Resource Management Plan. Winchester, Kentucky.

Yavaşlı, D.D,. Tucker, C, J., Melocik, K,A. 2015. Change in the glacier extent in Turkey during the Landsat Era, *Remote Sensing of Environment,* 1-10. http://dx.doi.org/10.1016/j.rse.2015.03.002

Yılmaz, H., Karaşah, B., Yüksel., E.E. 2009. Gülez yöntemine göre Kafkasör Kent Ormanının rekreasyonel potansiyelinin değerlendirilmesi. *Artvin Çoruh Üniversitesi Orman Fakültesi Dergisi,* 10(1),53-61.

Yulu, A. 2019. Friedrich Parrot'un Ağrı Dağı Araştırma Keşif Gezisi. *Coğrafya Dergisi,* 38, 49-58.

Yulu, A. 2020. Ağrı Dağı'nda Dağcılık Turizmi ve Çevresel Etkileri, *Coğrafi Perspektifle Dağ ve* Dağlık Alanlar (Sürdürülebilirlik-Yönetim-Örnek Alan İncelemeleri, (Ed.Birinci, S.,Kaymaz, Ç,K.,Kızılkan, Y) in 2020, s.329-355, Kriter Yayınevi, İstanbul.