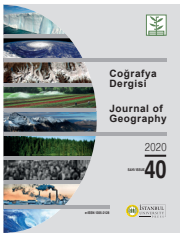

DOI: 10.26650/JGEOG2019-0051
COĞRAFYA DERGİSİ
JOURNAL OF GEOGRAPHY
2020, (40)
http://jgeography.istanbul.edu.tr

Determination of Strategies of Ecotourism in Protected Areas with SWOT-AHP Method: The Case of Aksaray – Ihlara Special Environmental Protection Zone (SEPZ)*

SWOT-AHS Yöntemi ile Korunan Alanlarda Ekoturizm Stratejilerinin Belirlenmesi: Aksaray-Ihlara Özel Çevre Koruma Bölgesi (ÖÇKB) Örneği

Kuttusi ZORLU[1], Ali YILMAZ[2]

[1]Ardahan Üniversitesi, İnsani Bilimler ve Edebiyat Fakültesi, Coğrafya Bölümü, Türkiye
[2]Uşak Üniversitesi, Fen Edebiyat Fakültesi, Coğrafya Bölümü, Uşak, Türkiye

ORCID: K.Z. 0000-0001-7967-9578; A.Y. 0000-0002-7762-3770

ABSTRACT
The need to overcome the problems created by human impact in protected areas has today necessitated the creation of various ways of sustainable development . The sustainability paradigm has become an important framework in tourism as in many other fields. Ecotourism is seen as a key element in the sustainability of tourism. It is defined as a tourism approach that protects and develops natural and cultural values, and at the same time enables the participation and development of local people. The aim of this study was to develop suitable ecotourism strategies for Aksaray's Ihlara Valley which is a Special Environmental Protection Zone (SEPZ). For this purpose, SWOT-AHP technique, which is a hybrid method, was used. In this study, after conducting the SWOT analysis which clarified the strengths-weaknesses and opportunity-threats of the Ihlara Valley, the weightings of SWOT groups and factors were determined by Analytical Hierarchy Process (AHP). Developed strategies for environmental, socio-cultural and economic sustainability are: "Determination of carrying capacity with effective ecotourism planning", "the creation of a new image of the region within the scope of international protection status", "elimination of tourism infrastructure- superstructure deficiencies", "diversification of tourist activities", "organizing training programs and courses of ecotourism for stakeholders" and "ensuring economic prosperity through the participation of local people in tourism". These strategies are thought to be beneficial for stakeholders in developing protection-use practices in a possible ecotourism planning process in Ihlara SEPZ.
Keywords: Ihlara Valley, AHP-SWOT, Ecotourism

ÖZ
Beşeri etkilerin korunan alanlarda yarattığı sorunların aşılması, günümüzde sürdürülebilir gelişim yollarını zorunlu kılmıştır. Sürdürülebilirlik paradigması, birçok konu alanında olduğu gibi turizmde de önemli bir çerçeve haline gelmiştir. Turizmin sürdürülebilirliğinde ise ekoturizm anahtar bir unsur olarak görülmektedir. Ekoturizm, doğal ve kültürel değerlerin korunması, geliştirilmesi ve aynı zamanda yerel halkın katılımını ve kalkınmasını sağlayan bir turizm anlayışı olarak tanımlanmaktadır. Bu araştırmada, bir Özel Çevre Koruma Bölgesi (ÖÇKB) olan Aksaray Ihlara Vadisi için uygun ekoturizm stratejilerinin geliştirilmesi amaçlanmıştır. Bu amaçla, hibrit bir yöntem olan SWOT-AHS tekniği kullanılmıştır. Çalışmada, Ihlara Vadisinin güçlü ve zayıf yönleri ile fırsat ve tehditlerinden oluşan SWOT analizi oluşturulduktan sonra, SWOT grup ve faktörlerin ağırlıkları Analitik Hiyerarşi Süreci (AHS) ile belirlenmiştir. Çevresel, sosyo-kültürel ve ekonomik sürdürülebilirliğie yönelik geliştirilen stratejiler: "Etkin bir ekoturizm planlaması ile taşıma kapasitesinin belirlenmesi", "bölgenin uluslararası koruma statüleri kapsamına alınarak yeni bir imajının oluşturulması", "turistik alt yapı ve üst yapı yetersizliklerinin giderilmesi", "turistik aktivitelerin çeşitlendirilmesi", "paydaşlar için ekoturizme yönelik eğitim programları ve kurslarının düzenlenmesi", "yerel halkın turizme katılımı sağlanarak ekonomik refahın sağlanması". Bu stratejilerin, Ihlara ÖÇKB'de gerçekleştirilebilecek olası bir ekoturizm planlama sürecinde, paydaşlara koruma-kullanma pratiklerinin geliştirilmesi konusunda fayda sağlayacağı düşünülmektedir.
Anahtar kelimeler: Ihlara Vadisi, AHS-SWOT, Ekoturizm

*This study was produced from the master thesis prepared in 2014.

Submitted/Başvuru: 22.11.2019 • **Accepted/Kabul:** 15.03.2020 • **Published Online/Online Yayın:** 24.06.2020

Corresponding author/Sorumlu yazar: Kuttusi ZORLU / kuttusi.zorlu@omu.edu.tr
Citation/Atıf: Zorlu, K. & Yilmaz, A. (2020). Determination of strategies of ecotourism in protected areas with SWOT-AHP method: The case of Aksaray – Ihlara special environmental protection zone (SEPZ). *Cografya Dergisi.* Advance online publication. https://doi.org/10.26650/JGEOG2019-0051

This work is licensed under Creative Commons Attribution-NonCommercial 4.0 International License

1. INTRODUCTION

Within the context of environmental protection, many activities are carried out in all protected areas, from natural heritage sites to national parks, from geoparks to nature conservation areas (Kostopoulou and Kyritsis, 2011). These various activities refer to enterprises such as conserving existing natural resources, scientific research and environmental education, nature-based tourism and recreation (Valdivieso et al., 2015; Bello et al., 2016; Kervankıran and Eryılmaz, 2016). Tourism is particularly seen as an important activity for the future of these areas by financing the management of protected areas (Buckley, 2000; Eagles, 2002; Holden, 2016; do Val Simardi Beraldo Souza et al., 2017; Somuncu and Yiğit, 2009). However, it is clear that tourism management in protected areas is generally difficult in terms of balancing the protection of natural heritage and providing access to visitors (McCool, 2009). According to Akbulak and Cengiz (2014), economic and social activities in protected areas may lead to degradation of landscape character-habitat and increase the density of land use. Thus, it is claimed that despite the sensitivity of ecosystems and species in protected areas, indiscriminate and uncontrolled tourism development may have greater negative effects in these areas (Higham and Lück, 2007; Weaver, 2002; Valdivieso et al., 2015). Currently the relationship between visitors and protected areas is continuing to grow as more travel options are becoming available, thus making the picture even more complex. Tourism to these areas includes visiting aspects of natural life, contact with local communities and learning about special ecosystems (Eagles, 2002; Plummer and Fennell, 2009; Frost and Hall, 2009). At this point, new types of tourism have emerged such as ecotourism, green tourism, nature based tourism and heritage tourism. Ecotourism is used as a tool of local development and protection, as a means of providing the socio-economic needs of local communities, and to balance the conservation of biodiversity (Robinson, 1993; Tosun and Jenkins, 1996; Bushell and Eagles, 2007; Gale and Hill, 2009; Mccool, 2009; Snyman, 2016; Akbulak and Cengiz, 2014; Sara Demir, Esbah and Akgün, 2016; Turoğlu and Özdemir, 2005).

Most ecotourism practices in protected areas seek to balance heritage conservation and local development goals (Mccool, 2009; Balmford et al., 2015; Mellon and Bramwell 2016). Therefore, tourism planning in protected areas should address competitiveness and heritage conservation objectives at the same time (McCool, 2009). Poorly managed tourism can have a negative impact on the environment, but at the same time an important environmental resource can add a positive attraction to the region (Valdivieso et al., 2015). If protected areas are appropriately designed and effectively managed, tourism can be a means of enhancing the well-being of local communities, providing funding for environmental protection efforts and creating alternative opportunities (Jamaliah et al., 2019).

In order to ensure the sustainable development of tourism in protected areas and to prevent negative consequences, strategies should be identified and activities planned and managed within the framework of these strategies (Akbulak and Cengiz, 2014). One of the commonly used techniques to determine strategies is the Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis technique. SWOT analysis is an approach that analyzes internal and external factors that affect an organization or action plan (Kangas et al., 2003). The purpose of any SWOT analysis is to identify the key strengths and weaknesses of an organization, as well as the opportunities and threats in the environment. However, one of the most important limitations of SWOT analysis is the inability to quantitatively determine the weight and importance of the factors on the plan or strategy (Kangas et al., 2003; Masozera et al., 2006; Yüksel and Dagdeviren, 2007; Akbulak and Cengiz, 2014).

Some researchers have proposed the use of multi-criteria decision-making techniques to address the inadequacies of SWOT analysis (Kurttila et al., 2000; Shrestha, Alavalapati, and Kalmbacher, 2004; Kajanus, Kangas and Kurttila, 2004). The Analytical Hierarchy Process (AHP) is one of the most commonly used multi-criteria decision making techniques and it can be successfully implemented with SWOT analysis (Kurttila et al., 2000; Kajanus et al., 2004; Öztürk, 2015; Yüksel and Dagdeviren, 2007; Akbulak and Cengiz, 2014; Gıran Taşcıoğlu and Akpınar, 2016; Arsić, Nikolić and Živković, 2017; Demir et al., 2016; Yılmaz and Zorlu, 2018; Demir and Atanur, 2019). First developed by Saaty in 1971-75 to solve complex problems, AHP is a multi-criteria decision making technique that enables the evaluation of qualitative and quantitative variables together (Saaty, 1987).

With SWOT-AHP integration, quantitative values can be obtained by defining strengths, weaknesses, opportunities and threats related to an action plan. In this way, it is possible to determine SWOT factors and strategies more accurately (Kurttila et al., 2000; Kajanus et al., 2004; Arsić et al., 2017). This hybrid method increases the availability of qualitative SWOT analysis for strategic planning processes. When the literature is examined, there are many studies in which SWOT-AHP methods have been used.

In these studies, it is seen that SWOT-AHP method is adapted to different disciplinary areas for different purposes, some of which are basin and water resources management planning (Öztürk and Tönük, 2014; Karatayev et al., 2017), natural resource management and planning (Kangas et al., 2001; Kajanus et al., 2012), forest area management and environmental assessment (Kurttila et al., 2000; Grošelj, Hodges and Stirn, 2016; Etongo et al., 2018; Rachid and El Fadel, 2013; KC, Stainback and Chhetri, 2014), determining conservation-use strategy in national parks (Görmüş, 2012; Arsić et al., 2017; Arsić et al., 2018) and buffer zone management and planning (Margles et al., 2010).

SWOT-AHP application is also mostly used in tourism. Examples of this are determining tourism potential and strategy in tourism in general (Akbulak, 2016; Görener, 2016; Kajanus et al., 2004), determining destination management strategy (Öztürk, 2015; Boz and Karakaş, 2017), identifying alternative tourism types (Gıran Taşcıoğlu and Akpınar, 2016), ecotourism development strategy identification and prioritization (Akbulak and Cengiz, 2014; Demir et al., 2016; Demir and Atanur, 2019; Kişi, 2019), prioritizing tourism strategy (Fabac and Zver, 2011; Taşçıoğlu, 2011; Yücenur, 2017; Kaygısız, Ongun and Gövdere, 2016; Yılmaz and Zorlu, 2018).

Special Environmental Protection Zones (SEPZ) are areas that have integrity in terms of natural, historical, cultural and similar values and have economic value both in the country and the world. (Kaya, Aslan and Yılmaz, 2011). The operations in the Special Environmental Protection Areas declared by the Council of Minister, is carried out by the Ministry of Environment and Urbanization General Directorate of Protection of Natural Assets in accordance with the Decree Law No. 383. Today in Turkey, there are 18 areas of land listed as SEPZ. In this study we discuss Ihlara SEPZ in Aksaray Province. In this context, in Ihlara SEPZ, a methodology was proposed with the aim of developing strategies for appropriate ecotourism planning and management. Because of the advantages of SWOT-AHP technique, it was used as the main method in this study.

2. MATERIALS AND METHODS

2.1. Research Area-Ihlara SEPZ

The Ihlara Valley (**Figure 1**), located in the Güzelyurt District of Aksaray Province, was declared a Special Environmental Protection Zone (SEPZ) by the Council of Ministers Decision dated 22.10.1990 and numbered 90/1117.

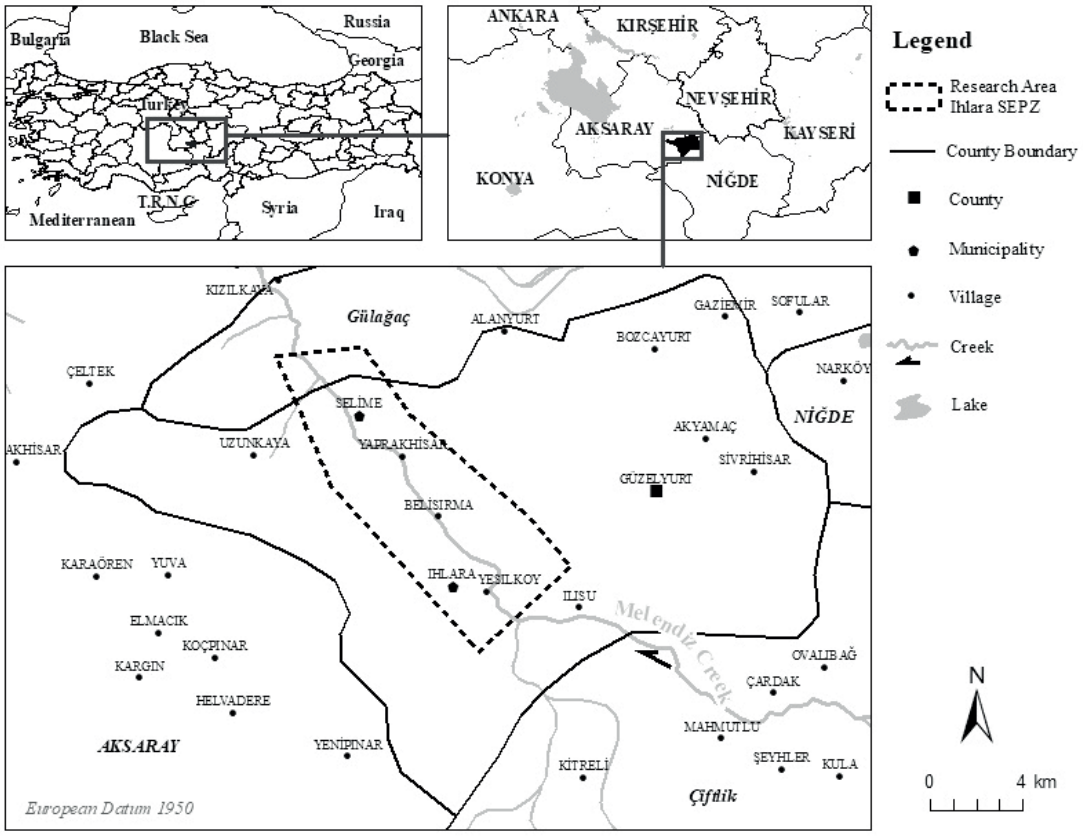

Figure 1: Location of Ihlara SEPZ.

Figure 2: Views from Ihlara Valley.

Ihlara SEPZ covering an area of 5,434 ha. includes the towns of Ihlara and Selime and the villages of Belisırma and Yaprakhisar. The total population of these four settlements in 2018 was 5,246 people (TUİK, 2019). The Ihlara Valley (**Figure 2**) located in the center of Ihlara SEPZ is described as an epigenic throat split deeply by the Melendiz Stream after a volcanic field was formed by the eruption of the volcano Mount Hasan (Kopar, 2010). The Ihlara Valley is an important area both in terms of diversity of natural ecosystem and historical and cultural heritage values.

Due to its particularly morphological structure, the valley has been used as a shelter and place of worship by people since the early Christian period (Varnacı Uzun and Somuncu, 2011). It is also an area of rich biodiversity and of a great variety of species due to its isolated structure. At the base of the valley, there is the Melendiz Stream, which is fed from the Melendiz Mountains and the Kırkgöz springs in Ihlara Town.

256 taxa belonging to 185 genera of 55 families have been determined, which illustrates the great biodiversity in the valley, and 32 of these taxa (12.5%) have been found to be endemic for Turkey (Ören and Keçeli, 2014). According to international protection criteria (IUCN), three of the species are vulnerable (VU), four are threatened (EN) and seven are near threat (NT) status (Ören and Keçeli, 2014). In previous studies, 20 species (Eulipotyphla, Chiroptera, Lagomorpha, Rodentia, Carnivora) belonging to various classes of mammals were identified in the valley (Toyran, Yorulmaz and Gözütok, 2017). In addition, Tabur (2014) identified a total of 171 bird species belonging to 16 teams and 45 families in his research in IIhlara and the surrounding area conducted between 2010 and 2011. Of these species, 60 were identified as native, 77 as summer migrants and 34 as winter migrants. In addition, 48 species use continuous wetlands, with the remaining 123 species being directly or indirectly dependent on wetlands (Tabur, 2014).

Çarşıiçi, Kayaardı, Karşı and Kayabaşı neighborhoods, Selime Town, Belisırma and Yaprakhisar Villages, all old districts of Ihlara Town, were registered as urban and third degree archaeological sites under the number 10.10.1991-1150 upon a decision made by the Konya Regional Board for the Protection of Heritages of Cultural and Natural Value. (Aksaray Governorship, 2009). In 2018, Aksaray Ihlara Valley was ranked sixth most visited (492.672) archaeological site in Turkey. (Turkey's Culture and Tourism Ministry, 2019). Ihlara SEPZ clearly requires sustainable ecotourism planning and management due to its annual population of around 500 thousand and a population of around 5 thousand.

The sensitive zone A corresponds to a first degree natural and archaeological site. The sensitive zone B is found in a first

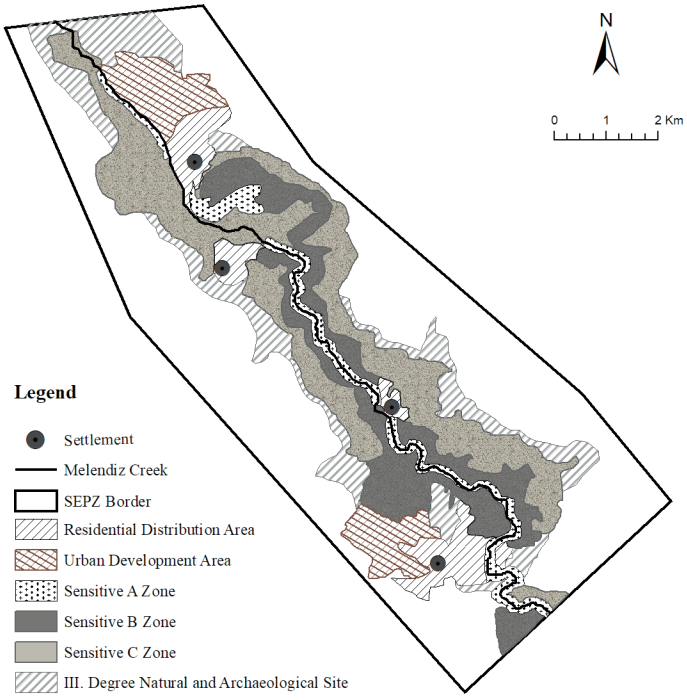

Figure 3: Ihlara SEPZ settlement and sensitive areas.

and second degree natural and archaeological site, and sensitive zone C is in a third degree natural and archaeological site. Settlement areas are located within in the boundaries of third degree natural and archaeological sites (**Figure 3**).

2.2. Method

In this study, the steps of SWOT-AHP applied to Ihlara SEPZ are as follows: (1) Determination of ecotourism potential and current status of the region by SWOT analysis, (2) Hierarchical structure of the model with binary comparisons for groups and factors of SWOT (3) Evaluation of decision-making group and calculation of weightings for each of the SWOT groups and factors (4) Determination of strategies.

1. Stage: At this stage, the ecotourism potential and current status of Ihlara SEPZ was determined by SWOT analysis. SWOT analysis was developed as a result of the evaluation of scientific literature and field studies.

2. Stage: In order to find out the weighting and ranking of the SWOT group and factors, we started to apply the AHS technique. After having constructed hierarchy of the problem, the matrices of pair-wise comparisons (Eq. (1)) were obtained. Binary comparisons of each SWOT group and factors were carried out. The purpose of the comparisons was to determine which of the two factors compared was more important. In the comparisons, a significance scale of 1-9 developed by Saaty (1987) was used to assign value.

In this matrix, the element *aij* =1/*aij* and thus, when *i* = *j*, *aij* = 1. The value of *wi* may vary from 1 to 9, and 1/1 indicates equal importance while 9/1 indicates extreme or absolute importance (Kahraman, Demirel and Demirel, 2017).

$$A = (a_{ij}) = \begin{bmatrix} 1 & w_1w_2 & \cdots & w_1w_n \\ w_2w_1 & 1 & \cdots & w_2w_n \\ \vdots & \vdots & \cdots & \vdots \\ w_nw_1 & w_nw_2 & \cdots & 1 \end{bmatrix} \quad (1)$$

In the comparisons, some inconsistencies can be expected and accepted. When A contains inconsistencies, the estimated priorities can be obtained using the matrix (Eq. (1)) as the input using the eigenvalue technique (Eq. (2)) (Saaty, 1990).

Where λmax is the largest eigenfactor of matrix **A**; **q** is its correct eigenfactor; and **I** is the identity matrix.

$$(\mathbf{A} - \lambda\max \mathbf{I})\ \mathbf{q} = 0 \quad (2)$$

Inconsistency may arise when λmax deviates from *n* due to inconsistent responses in pair-wise comparisons (Eq. (4)). Therefore, the matrix **A** should be tested for consistency using the formula,

$$\mathrm{CI} = \frac{\lambda_{max} - n}{n-1} \quad (4)$$

$$\mathrm{CR} = \mathrm{CI}/\mathrm{RI} \quad (5)$$

where CI is the consistency index, RI is the random index produced for a random matrix of order *n*, and CR is the consistency ratio. A rule of thumb is that the CR should be less than or equal to 0.1 (Saaty, 1990).

3. Stage: After comparing each group and and all the factors of SWOT, it was submitted to the evaluation of the decision-making group. This group was composed of experts in ecotourism and people, institutions and non-governmental organizations who are relevant for academic study on the Ihlara Valley. 23 questionnaires were obtained from e-mail and face-to-face meetings . Then, the process of calculating the relative local and global priority values of the factors was started by calculating the geometric mean of each question in which there were binary comparisons. Expert Choice 11 program was used to calculate mathematical operations.

4. Stage: In the final stage, 7 strategies were determined in Ihlara SEPZ for strengthening the existing strengths, eliminating weaknesses, evaluating opportunities and reducing threats for ecotourism. Global weightings of SWOT factors were taken into consideration for determining these strategies.

3. RESULTS

In Ihlara SEPZ, a situation analysis of 9 strengths, 5 weaknesses, 6 opportunities and 5 threats was made (**Table 1**).

When the results obtained by calculating the weights of the SWOT group and factors are examined (**Table 2**), the consistency ratio (CR) of the binary comparison matrix of the general SWOT groups is found to be 0.03. Generally, if the consistency ratio is less than 10%, that is, 0.10, the matrix is considered to be consistent (Saaty, 1987).

Strengths from the SWOT main group are ranked first with 0.463 (46.3%) average value. Opportunities are ranked second with 0.272 (27.2%), Threats are ranked third with 0.156 (15.6%), and Weaknesses are ranked last with 0.109 (10.9%) (**Table 2**).

Table 1. SWOT analysis of Ihlara SEPZ

Strengths	**Weaknesses**
S1- Having a Special Environmental Protection Zone (SEPZ)	W1- Lack of publicity
S2- Location being close to major cities and tourist centers	W2- Inadequate tourism infrastructure and superstructure
S3- To have historical and archaeological values	W3- Lack of awareness and experience on ecotourism
S4- To have the natural geological and geomorphological units	W4- Lack of administrative coordination in tourism
S5- To have ecological values	W5- Limited available tourism activities
S6- To have hydrological units	
S7- Hospitable local people	
S8- The elements of folk culture that can be a source of tourism	
S9- Region-specific agricultural forms and agricultural products	
Opportunities	**Threats**
O1- Receiving tourists from metropolitan and tourist centers	T1- Pressure of mass tourism on ecological values
O2- İntact natural environment	T2- Lack of administrative coordination on ecotourism
O3- The existence of many cultural values belonging to the region	T3- Degradation of nature and culture with tourism
O4- Presence of natural and cultural charms for different activities	T4- Excursion and week-end intensive use
O5- Aksaray is included in 2023 TTSAP for health tourism	
O6- The willingness of local people to ecotourism	

Table 2. Weight values and ranking of SWOT groups and factors

SWOT Groups and Weights	**Factors**		**Local Weights**	**Global Weights**
Strengths 0.463	Having a Special Environmental Protection Zone (SEPZ)	S1	0.092	0.042
	Location being close to major cities and tourist centers	S2	0.072	0.034
	To have historical and archaeological values	**S3**	**0.256**	**0.119**
	To have the natural geological and geomorphological units	S4	0.216	0.100
	To have ecological values	S5	0.111	0.051
	To have hydrological units	S6	0.094	0.043
	Hospitable local people	S7	0.052	0.024
	The elements of folk culture that can be a source of tourism	S8	0.052	0.024
	Region-specific agricultural forms and agricultural products	S9	0.055	0.025
Weaknesses 0.109	Lack of publicity	W1	0.183	0.020
	Inadequate tourism infrastructure and superstructure	**W2**	**0.385**	**0.042**
	Lack of awareness and experience on ecotourism	W3	0.143	0.016
	Lack of administrative coordination in tourism	W4	0.089	0.010
	Limited available tourism activities	W5	0.200	0.022
Opportunities 0.272	Receiving tourists from metropolitan and tourist centers	O1	0.146	0.040
	Intact natural environment	**O2**	**0.248**	**0.067**
	The existence of many cultural values belonging to the region	O3	0.236	0.064
	Presence of natural and cultural charms for different activities	O4	0.218	0.059
	Aksaray is included in 2023 TTSAP for health tourism	O5	0.086	0.023
	The willingness of local people to ecotourism	O6	0.066	0.018
Threats 0.156	Pressure of mass tourism on ecological values	T1	0.287	0.045
	Lack of administrative coordination on ecotourism	T2	0.171	0.027
	Degradation of nature and culture with tourism	**T3**	**0.415**	**0.065**
	Excursion and week-end intensive use	T4	0.127	0.020
	Overall Matrix Consistency Ratio (CR)= 0,03			

While the strengths and opportunities in the first two ranks indicate that the region has a significant potential for ecotourism, it was concluded that the threats are significant issues to which more attention needs to be paid than to the existing weaknesses.

While the G3 factor, which is one of the 9 strengths of Ihlara, is ranked first in the strengths category with a local priority value of 0.256 (25.6%), the G9 factor with the local priority value of 0.052 (5.2%) is ranked last among the 9 strengths (**Table 2**). The W2 factor, one of the five weaknesses, is found to be 0.385 (38.5%) with a local priority value and is ranked first among the weaknesses. The W4 factor, with a local priority value of 0.089 (8.9%) is in last place in the weaknesses group (**Table 2**). The O2 factor, which is one of the 6 opportunities, takes the first

place with a local priority value of 0.248 (24.8%) while O6 factor is ranked last with 0.066 (6.6%) (**Table 2**). Among the 4 threats, the T3 factor, with a local priority value of 0.415 (41.5%), is ranked first in terms of importance while the factor T4 is in the last place with 0.127 (12.7%) (**Table 2**).

When the global weight values of the SWOT factors are examined, 7 factors with a value over 5% are determined. S3 factor (11.9%) and S4 factor (10%) are in the first two ranks with global weighting while the S5 factor (5.1%) is found to be in the seventh rank with its global weighting. O2 factor (6.7%) third and O3 factor (6.4%) fifth global weight values are found to be important factors in the opportunities group. T3 factor (6.5%) is ranked fourth and T4 factor (5.9%) ranked sixth ,while threats are identified as important factors in the group.

6 ecotourism development strategies were proposed for Ihlara SEPZ after considering the global weight values of SWOT factors.

3.1. Environmental Sustainability

Strategy 1. Determination of carrying capacity with an effective ecotourism planning: Ihlara SEPZ has both an isolated habitat for plants and wildlife in terms of endemism and an important tourist supply with its historical and cultural values. The factors that have the most important priority from the strengths of the region are related to natural, historical and cultural values. The most important factor to be taken into consideration from the threats is that mass tourism might put pressure on the natural, historical and cultural values of the region. As a matter of fact, tourism activities in the region are carried out in an unplanned way. Ihlara SEPZ, which has around 500 thousand visitors annually, must have an established sustainable ecotourism plan against mass tourism activities and to determine the SEPZ's physical, social, administrative and ecological carrying capacities. According to the 2015-2019 management plan for Ihlara SEPZ, 3 sensitive zones are found within the valley. However, there are no restrictions for visitors in these zones. In general, it is aimed to prevent settlement structuring in these zones. Applications to restrict visitors in sensitive zones identified in Ihlara SEPZ should also be included in ecotourism planning.

Strategy 2. Elimination of touristic infrastructure and superstructure deficiencies: The inadequacy of the tourist infrastructure and superstructure in and around Ihlara is one of the reasons why the region cannot reach the desired position in tourism. As a matter of fact, the most important factor in the weaknesses is the insufficiency of tourism infrastructure and its superstructure. Intensive visits and limited activities by excursionists in Ihlara SEPZ cause insufficient infrastructure and superstructure in and around the valley. Thus, visitors do not benefit from the goods and services provided by tourism. Since there is no demand for tourism goods and services, the region is deprived of tourism investments. This situation also constitutes an obstacle for the economic development of the region. When tourism activities in the region are diversified by means of ecotourism planning, the tourism infrastructure will develop and the industry will grow.

3.2. Socio-Cultural Sustainable

Strategy 3. The creation of a new image of the region within the scope of international protection status: The international protection of Ihlara SEPZ as well as the acquisition of an important destination image can be achieved by including it in an international protection status. The decisions taken in the SEPZ, which has the status of national protection, will be insufficient for the protection of Ihlara in the long term. The fact that Göreme National Park and Cappadocia Rock Sites, two of the most important tourism areas of Cappadocia, are included in the UNESCO World Heritage List provides international protection and high tourist image. The Ihlara Valley of Aksaray has similar features to those of Göreme, Ürgüp and Avanos in terms of their natural and cultural geography. However, this region has been excluded from the UNESCO Göreme National Park and Cappadocia Rocky Sites as a result of past policies. In this context, studies should be carried out for Ihlara SEPZ to enable it to be included in this area or to be accepted as a UNESCO heritage site in its own right. In addition, studies should be carried out in order to include Ihlara SEPZ and Güzelyurt District to which it is administratively affiliated, with its geological and geomorphological heritage values, in the UNESCO Global Geopark Network. In this way, the region will be protected both under international status and thus increase its recognition as a new image. In order to achieve this, studies should be carried out with the active participation of all stakeholders (local authorities, experts, local people, local guides, travel agencies, operators, local-national and international press units).

Strategy 4. Organizing training programs and courses for ecotourism for stakeholders: Ihlara SEPZ's local people are found to be enthusiastic about tourism but insufficient in terms of tourism awareness and experience. This situation is one of the

important weaknesses of Ihlara and it needs to be carefully emphasized. It is stated that Ihlara SEPZ local people have a positive attitude towards the development of tourism and tourists (Varnacı Uzun and Somuncu, 2011). The problem of qualified personnel will be solved and employment will be provided if certificate courses and training programs were organised for the purpose of increasing the awareness of local people about tourism and ecotourism in region. In this way, 'participation of local people in tourism', which is one of the important principles of ecotourism, will be ensured.

3.3. Economic Sustainable

Strategy 5. Diversification of tourist activities: Ihlara SEPZ welcomes a lot of excursionist visitors. However, the diversity of tourism activities in and around the valley is limited. As a matter of fact, it is seen that limited tourism activities are an important factor in the weaknesses group. While this situation causes intense pressure on natural and cultural values, it cannot provide a significant economic return to the region. The SEPZ should be integrated with the tourist supply in its vicinity and diversified tourism activities should be provided. In this way, both the reduction of pressure caused by intensive use and economic input to the region will be provided. It is seen that the existence of natural and cultural values that can be the source of different activities in the opportunity group is an important factor.

Strategy 6. Providing economic prosperity through participation of local people in tourism: In Ihlara SEPZ, the use of the valley by private companies and its intensive use only with daily visitors causes tourism in the region to be completely disconnected from the local people. Most of the current economic activities in the SEPZ are still based on agriculture and stockbreeding. In addition, local people are still migrating to the outside world. It has been stated that the local people in Ihlara SEPZ do not benefit from tourism but they want to generate income from tourism (Gülkal, 1999) (Varnacı Uzun and Somuncu, 2011). Economic participation and diversity can be achieved by integrating agricultural activities in the SEPZ with ecotourism. Within the scope of agricultural tourism, products grown by the local people can be presented to tourists through established eco markets. In addition, Ihlara can be turned into an important viticulture center. Local people in Ihlara SEPZ think that they can make handicrafts and local products, as well as show hospitality and local guidance in tourism but they do not have enough knowledge and experience in these issues. (Varnacı Uzun and Somuncu, 2011). The idyllic historic civil architectural buildings can be restored and converted into family-run pensions and boutique hotels. Thus, effective participation of local people in tourism will be ensured.

4. DISCUSSION AND CONCLUSION

Ecotourism in protected areas has become an increasingly important concept for the sustainability of tourist destinations. Many ecotourism studies on protected areas in the literature are based on multi-criteria decision making techniques (Kajanus et al., 2004; Akbulak and Cengiz, 2014; Akbulak, 2016; Fabac and Zver, 2011; Arsić et al., 2017; Demir et al., 2016; Yılmaz and Zorlu, 2018; Demir and Atanur, 2019; Kişi, 2019). In this article, we aimed to develop ecotourism strategies with multi-criteria decision making techniques in order to minimize the effects of tourism on a natural and culturally sensitive area. In this context, Ihlara SEPZ, one of the 18 SEPZ, is discussed. This region was chosen because of its natural, historical and cultural values as well as the high number of visitors that it attracts and the fact that tourism is disconnected from the people of the region. Ecotourism is seen as the most suitable activity that can contribute to its sustainability and local development with its sensitive natural areas and rooted history. Strategic approaches are needed to develop, manage and monitor the ecotourism project in the region. For this reason, strategies for sustainable ecotourism planning and management in Ihlara SEPZ have been determined using a multi-criteria decision making technique. In Ihlara SEPZ, SWOT analysis for ecotourism consisting of strengths and weaknesses, and opportunities and threats were developed and 7 ecotourism strategies were proposed by digitizing the relevant SWOT groups and factors using AHP method. Although SWOT is an effective strategic planning tool, it can not quantitatively determine the burden and impact of factors on alternatives and strategies (Kangas et al., 2003; Lee, 2013). The Analytical Hierarchy Process (AHP) is one of the most commonly used multi-criteria decision making techniques and can be successfully implemented with SWOT analysis. This hybrid method increases the availability of qualitative SWOT analysis for strategic planning processes in ecotourism.

In this study, a methodology was proposed in Ihlara SEPZ with the aim of developing strategies for appropriate ecotourism planning and management. When the results of this study carried out with SWOT-AHP technique are considered by the stakeholders, it is predicted that they will make various contributions to the region. In practical terms, the proposed model is expected to contribute to the preservation of natural,

historical and cultural heritage values in the SEPZ and to the local development of the region. This proposed model has been applied for the first time in Turkey within the framework of SEPZ. The model is thought to provide an operational framework for the sustainable development of the concept of ecotourism in protected areas. Theoretically, it is thought that the validity of the proposed model will contribute to tourism literature. Furthermore, the SWOT-AHP technique is thought to be a useful and effective methodology for developing ecotourism planning strategies. In this study, in order to test the validity of the proposed model, the geometric mean of the comparisons was used in order to prevent the subjectivity of the decision-making group (experts).

Future research may apply other multi-criteria decision making techniques such as Fuzzy Analytic Hierarchy Process (BAHP), Analytical Network Process (AAP) to various research areas. In addition, only expert opinion was used in the decision-making group in this study. The results obtained by including different stakeholder groups in the decision-making group can be compared. Findings from such research can improve and broaden the overall methodology.

Peer-review: Externally peer-reviewed.
Conflict of Interest: The author has no conflict of interest to declare.
Grant Support: This work was supported by the [Ondokuz Mayıs University Project Management Office] under Grant [PYO. FEN 1904.12.03.6].

Hakem Değerlendirmesi: Dış bağımsız.
Çıkar Çatışması: Yazar çıkar çatışması bildirmemiştir.
Finansal Destek: Bu çalışma Ondokuz Mayıs Üniversitesi Proje Yönetim Ofisi tarafından desteklenmiştir. Bilimsel Araştırma Projesi, PYO. FEN 1904.12.03.6

REFERENCES/KAYNAKÇA

Akbulak, C. (2016). Ardahan ilinde kırsal turizm potansiyelinin sayısallaştırılmış SWOT analizi ile değerlendirilmesi. *Humanitas-Uluslar arası Sosyal Bilimler Dergisi, 4*(7), 1–30. doi: 10.20304/husbd.86882.

Akbulak, C., and Cengiz, T. (2014). Determining ecotourism strategies using A'WOT hybrid method: case study of Troia Historical National Park, Çanakkale, Turkey. *International Journal of Sustainable Development & World Ecology, 21*(4), 380–388. doi: 10.1080/13504509.2014.903383.

Aksaray Governorship, (2009). Kültür Envanteri. Retrieved from. https://aksaray.ktb.gov.tr/TR-170590/tasinmaz-kultur-varliklari.html

Arsić, S., Nikolić, D., Mihajlović, I., Fedajev, A. and Živković, Ž. (2018). A new approach within ANP-SWOT framework for prioritization of ecosystem management and case study of National Park Djerdap, Serbia. *Ecological Economics, 146*, 85–95. doi: 10.1016/j.ecolecon.2017.10.006.

Arsić, S., Nikolić, D. and Živković, Ž. (2017). Hybrid SWOT-ANP-FANP model for prioritization strategies of sustainable development of ecotourism in National Park Djerdap, Serbia. *Forest Policy and Economics, 80*, 11–26. doi: 10.1016/j.forpol.2017.02.003.

Balmford, A., Green, J. M. H., Anderson, M., Beresford, J., Huang, C., Naidoo, R. and Manica, A. (2015). Walk on the wild side: estimating the global magnitude of visits to protected areas. *PLoS Biology, 13*(2), 10.1371/journal.pbio.1002074.

Bello, F. G., Carr, N. and Lovelock, B. (2016). Community participation framework for protected area-based tourism planning tourism planning. *Tourism Planning & Development, 13*(4), 469-485. doi: 10.1080/21568316.2015.1136838.

Boz, M., and Karakaş, E. (2017). An assessment of prior destination characteristics in Canakkale: an A'WOT application. *Journal of Academic Social Science Studies, 58*, 337–350. doi: 10.9761/JASSS7047.

Buckley, R. (2000). Tourism in the most fragile environments. *Tourism Recreation Research, 25*(1) 31–40. doi: 0.1080/02508281.2000.11014898.

Bushell, R., and Eagles, P. F. J. (2007). *Tourism and protected areas.* UK: CAB International.

Demir, S., and Atanur, G. (2019). The prioritization of natural-historical based ecotourism strategies with multiple-criteria decision analysis in ancient UNESCO city : Iznik- Bursa case. *International Journal of Sustainable Development & World Ecology, 26*(4), 329-343. doi: 10.1080/13504509.2019.1596990.

Demir, S., Esbah, H. and Akgün, A. A. (2016). Quantitative SWOT analysis for prioritizing ecotourism-planning decisions in protected areas : Igneada case. *International Journal of Sustainable Development & World Ecology, 23*(5), 456–468. https://doi.org/10.1080/13504509.2015.1136709.

do Val Simardi Beraldo Souza, T., Thapa, B., Rodrigues, C. G. de O. and Imori D. (2017). Economic impacts of tourism in protected areas of Brazil. *Journal of Sustainable Tourism, 27*(6), 735-749. doi: 10.1080/09669582.2017.1408633.

Eagles, P. F. J. (2002). Trends in park tourism: Economics, finance and management. *Journal of Sustainable Tourism, 10*(2), 132–153. doi: 10.1080/09669580208667158.

Etongo, D., Kanninen, M., Epule, T. E. and Fobissie, K. (2018). Assessing the effectiveness of joint forest management in Southern Burkina Faso: A SWOT-AHP analysis. *Forest Policy and Economics, 90*, 31–38. doi: 10.1016/j.forpol.2018.01.008.

Fabac, R., and Zver, I. (2011). Applying the modified SWOT–AHP method to the tourism of Gornje Međimurje. *Tourism and Hospitality Management, 17*(2), 201–215.

Frost, W., and Hall, C. M. (2009). *Tourism and national parks: International perspectives on development, histories, and change"*(Vol. 14). Routledge.

Gale, T., and Hill, J. (2009). Ecotourism and environmental sustainability: An introduction. In J. Hill, and T. Gale (Eds.), *Ecotourism and environmental sustainability: Principles and practice* (pp. 3–16). Aldershot: Ashgate.

Gıran Taşcıoğlu, S., and Akpınar, N. (2016). A'WOT Analizi Tekniği İle Turizm Alanlarının Değerlendirilmesi: Kuzey Antalya Kültür ve Turizm Koruma ve Gelişim Bölgesi Örneği. *Journal of International Social Research,* (*42*), 1974-1985.

Görener, A. (2016). A SWOT-AHP approach for assessment of medical tourism sector in Turkey. *Alphanumeric Journal, 4*(2), 159–170. doi: 10.17093/alphanumeric.277740.

Görmüş, S. (2012). Korunan alan planlama stratejilerinin değerlendirilmesi: Kastamonu-Bartın Küre Dağları milli parkı örneği. *Journal of Bartin Faculty of Forestry, 14*(1. Special Issue), 37–48.

Grošelj, P., Hodges, D. G. and Stirn, L. Z. (2016). Participatory and multi-criteria analysis for forest (ecosystem) management: A case study of Pohorje, Slovenia. *Forest Policy and Economics, 71*, 80–86. doi: 10.1016/j.forpol.2015.05.006.

Gülkal, Ö. (1999). Ihlara (Kapadokya) Özel Çevre Koruma Bölgesi ve Yakın Çevresi Örneğinde; Koruma-Kullanma Dengeli Planlamaların Oluşturulmasında Kriterlerin Saptanması. (Doktora Tezi). Çukurova Üniversitesi, Fen Bilimleri Enstitüsü, Adana, Turkey.

Higham, J., and Lück, M. (2007). Ecotourism: Pondering the paradoxes. In Critical issues in ecotourism: Understanding a complex tourism phenomenon, edited by J. Higham, 117–135. Oxford: Butterworth-Heinemann.

Holden, A. (2016). *Environment and tourism*. Routledge.

Jamaliah, M. M., Alazaizeh, M. M., Alzboun, N., and Yahya, A. (2019). Protected area tourism in Jordan : an exploratory study. *Tourism RecreationResearch,44*(1),41-53.doi:10.1080/02508281.2018.1528723.

Kahraman, C., Demirel, N. Ç., and Demirel, T. (2007). Prioritization of e-Government strategies using a SWOT-AHP analysis: the case of Turkey, *European Journal of Information Systems, 16*(3), 284-298, doi: 10.1057/palgrave.ejis.3000679.

Kajanus, M., Kangas, J., and Kurttila, M. (2004). The use of value focused thinking and the A'WOT hybrid method in tourism management. *Tourism Management,* 25(4), 499–506. doi: 10.1016/S0261-5177(03)00120-1.

Kajanus, M., Leskinen, P., Kurttila, M., and Kangas, J. (2012). Making use of MCDS methods in SWOT analysis—Lessons learnt in strategic natural resources management. *Forest Policy and Economics, 20*, 1–9. doi: 10.1016/j.forpol.2012.03.005.

Kangas, J., Kurttila, M., Kajanus, M., and Kangas, A. (2003). Evaluating the management strategies of a forestland estate—the SOS approach. *Journal of Environmental Management, 69*(4), 349–358. doi: 10.1016/j.jenvman.2003.09.010.

Kangas, J., Pesonen, M., Kurttila, M., and Kajanus, M. (2001). A'WOT: Integrating the AHP with SWOT Analysis. *Proceedings–6th ISAHP*, 189–198.

Karatayev, M., Kapsalyamova, Z., Spankulova, L., Skakova, A., Movkebayeva, G., and Kongyrbay, A. (2017). Priorities and challenges for a sustainable management of water resources in Kazakhstan. *Sustainability of Water Quality and Ecology, 9*,115–135. doi: 10.1016/j.swaqe.2017.09.002.

Kaya, L. G., Aslan, F., and Yılmaz, B. (2011). Muğla-Dalyan Turizminin Özel Çevre Koruma Bölgesi Üzerine Etkileri. *İnönü Üniversitesi Sanat ve Tasarım Dergisi, 1*(3), 255-266.

Kaygısız, A. D., Ongun, U., and Gövdere, B. (2016). Burdur İli Turizm Stratejisinin Belirlenmesi: SWOT-AHP Uygulaması. *Eskişehir Osmangazi Üniversitesi İİBF Dergisi, 11*, 157–185.

Kervankıran, İ., and Eryılmaz, A.G. (2016). Milli parkların turizm ve rekreasyonel faaliyetlerde sürdürülebilir kullanımı: Isparta İli örneği. *SDÜ Fen Edebiyat Fakültesi Sosyal Bilimler Dergisi, 34*, 173-190.

KC, B., Stainback, G. A., and Chhetri, B. B. K. (2014). Community users' and experts' perspective on community forestry in Nepal: a SWOT–AHP analysis. *Forests, Trees and Livelihoods, 23*(4), 217–231. doi: 10.1080/14728028.2014.929982.

Kişi, N. (2019). A Strategic Approach to Sustainable Tourism Development Using the A'WOT Hybrid Method: A Case Study of Zonguldak, Turkey. *Sustainability, 11*(4), 964. doi:10.3390/su11040964.

Kopar, İ. (2010). *Melendiz ve Karasu Çayı: havzalarının jeomorfolojisi*. Erzurum: Atatürk Üniveritesi Yayınları.

Kostopoulou, S., and Kyritsis, I. (2011). A Tourism Carrying Capacity Indicator for Protected Areas. *Anatolia, 17*(1), 5-24. doi: 10.1080/13032917.2006.9687024

Kurttila, M., Pesonen, M., Kangas, J., and Kajanus, M. (2000). Utilizing the analytic hierarchy process (AHP) in SWOT analysis—a hybrid method and its application to a forest-certification case. *Forest Policy and Economics, 1*(1), 41–52. doi: 10.1016/S1389-9341(99)00004-0.

Lee, Y. H. (2013). Application of a SWOT-FANP method. *Technological and Economic Development of Economy, 19*(4), 570–592. doi: 10.3846/20294913.2013.837111.

Margles, S. W., Masozera, M., Rugyerinyange, L., and Kaplin, B. A. (2010). Participatory planning: Using SWOT-AHP analysis in buffer zone management planning. *Journal of Sustainable Forestry, 29*(6–8), 613–637. doi: 10.1080/10549811003769483.

Masozera, M. K., Alavalapati, J. R. R., Jacobson, S. K., and Shrestha, R. K., 2006. Assessing the suitability of community-based management for the Nyungwe Forest Reserve, Rwanda. *Forest Policy and Economics, 8*(2), 206–216. doi: 10.1016/j.forpol.2004.08.001.

Mccool, S. F. (2009). Constructing partnerships for protected area tourism planning in an era of change and messiness. *Journal of Sustainable Tourism, 17*(2), 133-148. doi: 10.1080/09669580802495733.

Mellon, V., and Bramwell, B. (2016). Protected area policies and sustainable tourism: influences, relationships and co-evolution. *Journal of Sustainable Tourism, 24*(10), 1369–1386. doi: 10.1080/09669582.2015.1125909.

Ören, M., and Keçeli, A. (2014). The moss flora Ihlara Valley (Aksaray/Turkey). *Biological Diversity and Conservation, 7*, 88–93.

Öztürk, S, and Tönük, G. U. (2014). The participation of public institutions and private sector stakeholders to Devrekani Watershed management planning process. *Journal of the Faculty of Forestry, Istanbul University, 64*(2),14–23. doi: 10.17099/jffiu.98433.

Öztürk, S. (2015). Determining management strategies for the Sarikum nature protection area. *Environmental Monitoring and Assessment, 187*(3), 113. doi: 10.1007/s10661-015–4302-3.

Plummer, R., and Fennell, D. A. (2009). Managing protected areas for sustainable tourism: prospects for adaptive co-management. *Journal of Sustainable Tourism*, *17*(2), 149–168. doi: 10.1080/0966958080 2359301.

Rachid, G., and El Fadel, M. (2013). Comparative SWOT analysis of strategic environmental assessment systems in the Middle East and North Africa region. *Journal of Environmental Management, 125*, 85–93. doi: 10.1016/j.jenvman.2013.03.053.

Robinson, J. G. (1993). The limits to caring: sustainable living and the loss of biodiversity. *Conservation Biology, 7*(1), 20–29.

Saaty, R. W. (1987). The analytic hierarchy process, what it is and how it is used. *Math Modelling, 9*, 3-5, 161–176.

Saaty, T. L. (1990). How to make a decision: the analytical hierarchy process. *European Journal of Operational Research*, *48*, 9–26.

Shrestha, R. K., Alavalapati, J. R. R., and Kalmbacher, R. S. (2004). Exploring the potential for silvopasture adoption in south-central Florida: an application of SWOT–AHP method. *Agricultural Systems,* 81(3), 185–199. doi: 10.1016/j.agsy.2003.09.004.

Snyman, S. (2016). *Strategic community participation in sustainable tourism.* In Reframing sustainable tourism, edited by S. F. McCool and K. Bosak, 65–77. New York, NY: Springer. doi:10.1007/978-94-017-7209-9_5.

Somuncu, M. and Yiğit, T. (2009). Göreme Millî Parkı ve Kapadokya Kayalık Sitleri Dünya Mirası Alanı'ndaki Turizmin Sürdürülebilirlik Perspektifinden Değerlendirilmesi. V. Ulusal Coğrafya Sempozyumu Bildiriler Kitabı, Ankara Üniversitesi, Türkiye Coğrafyası Araştırma ve Uygulama Merkezi (TÜCAUM), Ankara, 16-17 Ekim.

Tabur, M. A. (2014). Ihlara vadisinin (Aksaray) kuşları. *Erciyes Üniversitesi Fen Bilimleri Enstitüsü Fen Bilimleri Dergisi, 30*(3), 162–173.

Taşçıoğlu, S. G. (2011). Turizm planlamasında sayısal SWOT analizi uygulaması: Oymapınar Kültür ve Turizm Koruma ve Gelişim Bölgesi örneği. *Akdeniz Üniversitesi Ziraat Fakültesi Dergisi, 24*(2), 87–93.

Turkey's Culture and Tourism Ministry, 2019. Museum Statistics. Retrieved from. https://kvmgm.ktb.gov.tr/TR-43336/muze-istatistikleri.html

Tosun, C., and Jenkins, C. L. (1996). Regional planning approaches to tourism development: The case of Turkey. *Tourism Management, 17*(7), 519–531. doi: 10.1016/S0261-5177(96)00069-6.

Toyran, K., Yorulmaz, T., and Gözütok, S. (2017). Mammal fauna of Ihlara Valley (Aksaray, Turkey). *Bitlis Eren University Journal of Science and Technology, 7*(2), 108–114.

TUIK, 2019. Adrese Dayalı Nüfus Kayıt Sistemi. Retrieved from. https://biruni.tuik.gov.tr/medas/?kn=95&locale=tr

Turoğlu, H. and Özdemir, H. (2005). Bartın İlinin Ekoturizm Potansiyelinin Belirlenmesi. *Doğu Coğrafya Dergisi*, *10*(13): 97–116.

Valdivieso, J. C., Eagles, P. F. J., and Gil, J. C. (2015). Efficient management capacity evaluation of tourism in protected areas. *Journal of Environmental Planning and Management, 58*(9), 1544–1561. doi: 10.1080/09640568.2014.937479.

Varnacı Uzun, F., and Somuncu, M. (2011). Kültürel peyzajın korunması ve turizm iliskisi bağlamında yerel halkın görüşleri: Ihlara Vadisi örneği. *Ankara Üniversitesi Çevrebilimleri Dergisi, 3*(2), 21–36.

Weaver, D. (2002). Asian ecotourism: Patterns and themes. *Tourism Geographies, 4*(2), 153–172. doi: 10.1080/14616680210124936.

Yılmaz, A., and Zorlu, K. (2018). SWOT-AHS Analizi Kullanılarak Sinop'ta Sürdürülebilir Turizm Stratejilerinin Önceliklendirilmesi. *Journal of International Social Research, 11*(61), 390–403. doi: 10.17719/jisr.2018.2929.

Yücenur, G. N. (2017). Turizm sektöründe strateji seçimi için bulanık veriler yardımıyla hiyerarşik ağ modeli ve SWOT analizi: Türkiye örneği. *Sakarya University Journal of Science, 2*(5), 915–931. doi: 10.16984/saufenbilder.337268.

Yüksel, İ., and Dagdeviren, M. (2007). Using the analytic network process (ANP) in a SWOT analysis–A case study for a textile firm. *Information Sciences, 177*(16), 3364–3382. doi: 10.1016/j.ins.2007.01.001.