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The Interaction of the Physical Environment Conditions With Local People: The Case of The Region Ahir Mountain of Kahramanmaraş

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ABSTRACT
The aim of this study was to analyze the ways of people of Kahramanmaraş Ahir Dağı, benefiting from the natural environment and the effects of physical environmental conditions on these forms of utilization. The way of local population benefited from the natural environment has analyzed by means of questionnaires and the obtained data were evaluated by SPSS. Then, the obtained data was analyzed by using the variance analysis by associating with the elevation and land cover. The data obtained from the analysis were interpreted to the basis for nature conservation studies. As a result; physical environment conditions in mountainous areas affected by the recreational attractiveness of the local people with their income status, educational status, variety of livelihoods, their perspective on life, the variety and degree of environmental pressures and the degree of environmental pressures. Based on the results obtained, it has been proposed to increase the education level of the local people, to provide education to increase environmental awareness and awareness, to support alternative livelihoods and to increase pasture areas.

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Yöre Halkının Doğal Çevre İle Olan Etkileşimlerinde Fiziksel Çevre Koşullarının Etkisi: Kahramanmaraş Ahır Dağı Örneği

ÖZET
Bu çalışma kapsamında; Kahramanmaraş Ahır Dağı ve yakın çevresinde yaşayan yöre halkının, doğal çevreden yararlanma biçimlerinin analiz edilmesi ve fiziksel çevre koşullarının bu yararlanma biçimleri üzerine etkilerinin ortaya konulması amaçlanmıştır. Yöre halkının doğal çevreden yararlanma biçimi anketler yoluyla analiz edilmiş, elde edilen veriler SPSS 11.5 programı ile değerlendirilmiş, daha sonra bu veriler yükselti ve arazi örtüsü ile ilişkilendirerek varyans analizi gerçekleştirilmiştir. Analiz sonucunda elde edilen veriler doğa koruma çalışmalarına altlık oluşturacak şekilde yorumlanmıştır. Sonuç olarak; dağlık alanlarda fiziksel çevre koşullarının yöre halkının gelir durumu, eğitim durumu, geçim kaynaklarının çeşitliliği, hayata bakış açılarını, çevresel baskıların çeşitliliği ve derecesi ile rekreasyonel çekiciliği etkilediği belirlenmiştir. Elde edilen sonuçlardan hareketle yöre halkının eğitim seviyesinin yükseltilmesi, çevre bilincini ve farkındalıkları arttıracak eğitimlerin verilmesi, alternatif geçim kaynaklarının desteklenmesi, mera alanlarının artırılması önerileri geliştirilmiştir.

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INTRODUCTION
Mountains are highly sensitive ecosystems due to their high ecological value, topography and climate factors. Physical environment conditions flora, fauna,

water and mineral resource values and climatic conditions are the most important reason of its richness. It is also an important factor in the formation of socio-economic and cultural characteristics. Life styles of local people living in mountainous areas; it is noteworthy with its social and cultural dimension as well as its economic dimension (Kısakürek and Karadeniz, 2009).

The social and cultural dimension of mountainous areas is the result of the interaction of local people with natural resources (Iswandono et al 2015). In this context; the mountains meet the economic, social and psychological needs of the local people. Physical environment, unsustainable agricultural practices and population growth of mountainous areas limit the livelihoods of rural people and affect the destruction of forests and biodiversity (Kang et al., 2017). These anthropogenic effects on the physical environment have been threaten the sustainability of natural resources by causing environmental problems such as soil, air, water pollution and destruction of the natural and cultural environment.

Physical environment and the use of natural resources by local people have constituted the basis of anthropogenic effects. From this point of view, as in all studies on the global national and local scale, the current world view in mountainous areas, beliefs and attitudes of relations with nature; to present socio-cultural structure have been faced as one of the main steps. Understanding the relationships with nature in the mountainous areas, determination of the interactions with the physical environment conditions, high solutions of the local acceptability will be able to provide (Baylan, 2009).

A rural development support program is being implemented on many mountainous areas a global and national scale. These programs are used to improve the living conditions of the local people, to increase their income and to experience the sustainability of natural resources. In the process of protection and management, the importance of the cooperation, support and effective role of the local people to these programs are increasing (Gibbs and Bromely, 1990; Rao and Geisler, 1990; Western et al., 1994; Gibson and Marks, 1995; Tomićević et al., 2010).

Sustainable mountain management; they require holistic planning and socio-cultural processes. Sustainable use of traditional local knowledge is extremely important in protecting mountain resources. Both the conservation approach and traditional local knowledge are based on a scientific fact. Therefore, it is important to uncover and use of local knowledge (Iswandono et al., 2015).

The sustainability of the natural and cultural resource values of mountain ecosystems. It has to necessitates known of the interaction of the local people with the ecosystem. The aim of this study was to determine the effect of physical environment conditions on the use of natural resources of the local people in Kahramanmaraş Ahir Mountain. In this study, the following questions were sought answers.

How there is an interaction between the physical environment with the social and economic activities of local people.

How is affects the high altitude that is an important physical environment condition, the ways of benefit from natural resources of local people.

How affects land cover, which is an important physical environmental condition, the ways of benefit from natural resources of local people.

The aim of this research; to analyze the ways in which the local people living in Kahramanmaraş and Ahir Mountain and its immediate surroundings benefit from the natural environment and to reveal the effects of the physical environmental conditions on these forms of use.

MATERIAL and METHOD

The main material of the research was the Ahir Mountain. From the traditional maps of the research area; to learn about topographic, geological and soil structure, from the satellite image of Rapideye that dated 29.06.2013 and with 5 m resolution; to obtain land cover information, from the survey forms; to determine the interaction of local people with the environment, from ArcGIS 9.3; digitizing maps and associating them with each other, SPSS 11.5 program; to analyze the data collected by surveys as an auxiliary material have used.

Research Area

The research was carried out in the Ahir Mountain, an extension of the Southeast Toros Mountains in the Eastern Mediterranean Region. It is located in north latitudes of $36^0$46'-$37^0$22'–and the eastern longitude of $36^0$46_'$37^0$22 which has an area of approximately 97500 ha covering Ahir Mountain and its immediate surroundings(Figure1).Menzelet and Sır Baraj Lakes in the north and west of Ahır Dağı are surrounded by Kahramanmaraş Plain in the south and their elevations vary between 350 and 2301 m. Milcan Mountain (2301 m), Hambur Hill (2044 m), Sakibaba Hill (1953 m), Ulucak Hill (1816 m), Bayrak Hill (1685 m), Kütuklutarla Hill (1129 m) and Kibletas Hill (1902 m), are in the research area important hills (Kısakürek et al., 2014). In the research area, up to 1000m low rainy mediterranean climate is dominant and rainy Mediterranean bioclimate type after 1000m is dominant.

Ahir Mountain has a slope-like land structure. Areas have with 0-6% inclination constitute 20% of the area

and 30% of areas with 20-30% slope.36% of Ahır Mountain consists of 4th and 6th grade soils, 40% 7th grade soil, 24% consists of 1st, 2nd and 3rd grade soil lands.

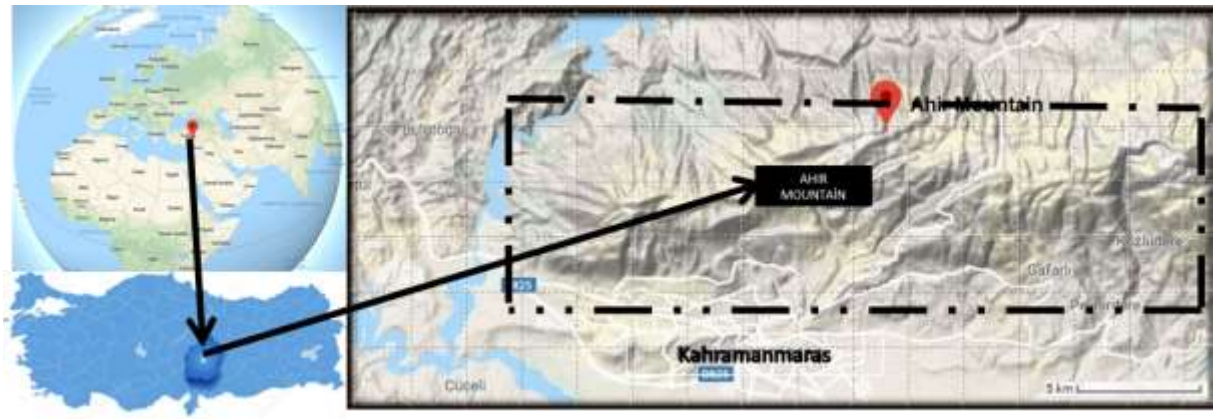

Figure 1. Geographical location of the research area
Şekil 1.Araştırma alanını konumu

Ahir Mountain is located in the transition zone of the Mediterranean and Iran-Turan Phytogeographic regions and at the point where the Anatolian Diagonally is divided into two branches in the south. This is the main reason for being flora and fauna rich and important plant area (IPA). In the research area there are three vegetation zone, as bushes, forest and alpine formation. In the research area there are two crater lake as Küçükgöl and Karagöl and 2 reservoirs that lakes built on the Ceyhan River and Aksu Stream. Transportation between the settlements and the city center is provided by stabilized and raw roads.

There are 24 village settlements on Ahir Mountain. The largest settlements of the research area according to the population are Kılavuzlu (1274), Dereli (1195) and Ayaklıcaoluk (1132). According to the population, the smallest settlements are Emiruşağı (122) and Yenipınar (155) is Akyar (189). While the population is decreasing in the settlements located to the north of the research area, there is not see change in the population of the rural settlements in the south. The total population has decreased in 2012, but it increased again until 2014 and this difference has closed.

Method

This study was carried out to determine the effects of physical environment conditions on the ways in which local people benefit from the natural environment, was carried out at three stage as that literature review data collection and evaluation. Approval was obtained from The Ethics Committee of Kahramanmaraş Sütçü Imam University with the decision numbered 36753362-11 dated 13.03.2013 for the questionnaire forms implemented within the scope of the Tubitak project.

In the first stage, firstly all the studies about the rural and mountainous areas, the problems experienced and the previous scientific studies on the socio-economic and cultural structure were examined. The data obtained in the second stage are compiled under two different data groups as physical data socio-economic and cultural data in accordance with the purpose of the research.

Obtaining physical data: It is ensured that traditional maps have common coordinate system by using ArcGIS program in geographic information systems environment. The data obtained from the map was supported by a large number of reports and publications. Elevation classes and land cover maps were created in GIS, for use in later stages. The topographic map was used for the elevation classes map and the forest management plans for the land cover map.

Obtaining socio-economic and cultural data: The survey forms that is 20 question have used to learn socio-economic, demographic and cultural structure and the ways to benefit from natural environment. Kısakürek (2006) was used in the preparation of the survey questions. After preparing the survey questions, firstly the research area was applied in rural settlements and necessary arrangements were made in order to test the accuracy of the questions. The survey forms were applied to 200 people living in rural areas with face to face method to represent each village. The data obtained from the survey forms were evaluated in the tables in Microsoft Excel environment and evaluated with SPSS program.

The data obtained in the third stage have determined according to the purpose of the study. As Şengün (2007) and Taş and Yakar (2010) have benefited, the physical environment conditions that may be effective in the interaction of local people with the environment (elevation and land cover) have been determined. In determination of elevation and land

cover as physical environment; the theory that it can be easily obtained and the effect of the local people on the use of the environment has been the factor.

The interaction between the environment and the local people's use of the environment: In order to determine the effect of the uplift on the natural resources, the elevation and location of the settlements were firstly formed the climate characteristics and the vegetation and the ecological boundary at equal distance in every 100 meters to form (Karagel and Karagel, 2010). Then, rural settlements were associated with elevation classes and survey questions were evaluated by variance analysis according to elevation classes. The elevation classes have continued from the lowest to the highest point where the village settlement was located at intervals of 100 meters each. The survey questions were evaluated according to the elevation classes.

Interaction between land cover and local people's use of environment: In the research area, two groups, namely agriculture and forest were formed considering the land cover of the rural settlements. The land cover of rural settlements was obtained by using forest management plan and topographic map. Then, the land cover was matched with the survey questions. Land cover groups have been associated with placements in Microsoft Excel tables. Then, variance analysis has performed in SPSS environment. As a result of the analysis of variance, it was evaluated by interpreting the situations where there was a significant relationship between them.

The effect of the elevation and land cover on the age groups, income status, occupation, education and livelihoods, as well as on the use of natural resources were obtained by interpreting the results of this analysis.

RESULTS and DISCUSSION

The data obtained from the research is based on the demographic socio-economic and cultural structure of the local people, the ways of using natural resources and threats. the interaction of the ways of using natural resources with the physically environment.

Demographic Socio-Economic and Cultural Structure of Local People

As a result of the surveys conducted with the local people; 50.0% of the participants were 51 years old and over individuals and 47% were 31-50 years old individuals, only 3% of the participants are under 30 years of age or younger individuals have been consisted. While 77.5% of the respondents were primary school graduates, 13% were illiterate. Middle school graduates make up 5.5% of the participants and only 1.5% of high school and university graduates (Table 1).

80.4% of the participants were 1000 TL or less, 11.6% consists of individuals with monthly income of TL 2001 and above. The income level of the individuals living in the research area is very low. 20.5% of the

Table 1. Age groups of the participants, education, income status and distribution by occupational groups.
Çizelge 1. Katılımcıların yaş, eğitim, gelir durumu ve meslek gruplarına göre dağılımı

	Age groups	The number of participants (n)	Percentage Rate (%)
Age groups	Under the age 30	6	3,0
	31-50	94	47.0
	Over the age 51	100	50.0
	Total	**200**	**100.0**
Educational status	Illitirate	26	13.0
	Literrate	2	1.0
	Primary school	155	77.5
	Middle school	11	5.5
	High school	3	1.5
	Üniversity	3	1.,5
	Total	**200**	**100.0**
Income status	0-1000	90	80.4
	1001-2000	9	8.0
	2001 and above	13	11.6
	Total	**112**	**100.0**
Occupational Groups	Farmer	150	75.0
	Retired	4	2.0
	Housewife	3	1.5
	Officer	2	1.0
	Self-employed and other	41	20.5
	Total	**200**	**100.0**

participants were consist of self-employed, 75.0% were consist of farmers. In addition, retired, housewife and officer are the other occupational groups encountered in the study area (Table 1).

Their views with related on their importance of livelihoods of local people of Ahir Mountain; agriculture, farming, plant harvesting and craftsmanship (Table 1).

Grade, livestock, workmanship, apiculture, plant harvesting and agriculture have important in the 2nd degree, beekeeping, wormanship, planting, agriculture and farming have determined as the third most important livelihoods. It was determined that the local people carried out the activities of agriculture (83%), livestock activities (79.6%) and plant gathering (15.8), respectively (Table 2).

Table 2. The importance ranking of the participants related to livelihoods and natural resources
Çizelge 2.Katılımcıların doğal kaynaklar ve geçim kaynakları ile ilgili önem sıralaması

Importance level		1	2.	3.	4.	5.		
% Values		%	%	%	%	%	Total	Average
Livelihoods	Agriculture	83.0	11.9	5.2	0	0	100.0	1.22
	Livestock activities	17.6	79.6	2.8	0	0	100.0	1.85
	Beekeeping	0	27.3	72.7	0	0	100.0	2.33
	Workmanship	8.6	57.1	31.4	2.9	0	100.0	2.29
	Offices	0	0	100	0	0	100.0	3
	Hunting	0	0	0	00	0	100.0	4
	Plant collector	15.8	15.8	7.4	15.8	5.3	100.0	2.79
Natural Resources	Agricultural land	78.7	11.3	9.3	0.7	0.0	100.0	1.32
	Streams and lakes	32.3	53.5	7.1	7.1	0.0	100.0	1.89
	Mining	5.6	11.1	50.0	11.1	22.2	100.0	3.33
	Forests	25.4	36.1	35.2	3.3	0.0	100.0	2.16
	Grasslands	13.4	53.7	20.7	12.2	0.0	100.,0	2.34
Important on threats natural resources	Agricultural activities	90.2	5.9	3.9	-	-	100.0	1.14
	Farming	62.1	31.0	6.9	-	-	100.0	1.45
	Settlement	57.1	38.1	4.8	-	-	100.0	1.48

1: 1st degree important, 2:2st degree important, 3: 3st degree important

It is determine Local people 1st degree important natural resources agriculture, rivers and lakes, forests; as 2 st degree important natural resources pastures, rivers and lakes, forests and agricultural lands, 3 st. important natural resource; mines, forests and rangeland (Table 2).

Forms of Utilization From Natural Resources of Local People

While the agricultural activities for 90.2% of the local people and the 57.1% of the livestock activities for the 62.1% of the population have considered as the primary threat, construction and livestock have been considered to be the second most important threat (Table 2).

The target of using local resources for agriculture and livestock (46%), irrigation and drinking water (26.6%), livelihood (22%), warming (5.1%) stated that they use (Table 3).

54.4% of the local people should be protected for protection of natural resources and 22.8% stated that natural resources could be protected by increasing water and water use opportunities (Table 3).

The Impact of Physical Environment Condition on The Use of Natural Resources by Local People

The impact of elevation: In this study, in order to determine the elevations of the settlements, a map of elevation classes was created (Figure 2). The lowest elevation with rural settlements is 790 m and the highest elevation is 1290 m. The survey questions were evaluated according to the elevation classes (Table 4).

Table 3. The relationship of local people with natural resources and their opinions about conservation.
Çizelge 3.Yöre insanının doğpal kaynaklar ile ilişkileri ve koruma hakkındaki görüşleri

		N	%
Purposes of individuals to benefit from natural resources.	Irrigation - drinking water	47	6.6
	Livelihood	39	2.0
	Warming	9	5.1
	Agriculture and farming	82	46.3
	Total	**177**	**100.0**
Work needs to done for the protection of natural resources.	Must be protected	74	54.4
	It must be education and information studies	11	8.1
	Water and water facilities should be increased	31	22.8
	Other	20	14.7
	Total	**136**	**100.0**

Table 4. The distribution of the surveys according to elevation classes
Çizelge 4.Anketlerin yükseltilere göre dağılımı

Elevation classes (metre)	n	%	Settlements number
790 – 890	54	27.0	4
890 – 990	7	3.5	4
990 - 1090	12	6.0	2
1090- 1190	84	42.0	7
1190-1290	43	21.5	5
Total	**200**	**100.0**	

These elevations were taken into consideration in the evaluation of the survey questions. Although the altitude of the Ahir mountain is 2301 m, the evaluation table 3 and figure 2 don't include these elevations. The distribution of the surveys according to elevation classes was given (Table 4). There were no settlements other than the elevation groups in the table 4. The interaction between the elevation of physical environment conditions and the use of people from the environment was obtained by evaluating the results of variance analysis.

As a result of the evaluation, it is seen that the number of settlements increased with an elevation up to 1200 m, and after this point it tended to decrease (Table 4). Atasoy and Şahin (2013) and Avci (2017) differ in terms of increasing the number of settlements and population density with elevation, but this can be explained with ease of transportation and highland settlements (Figüre2).

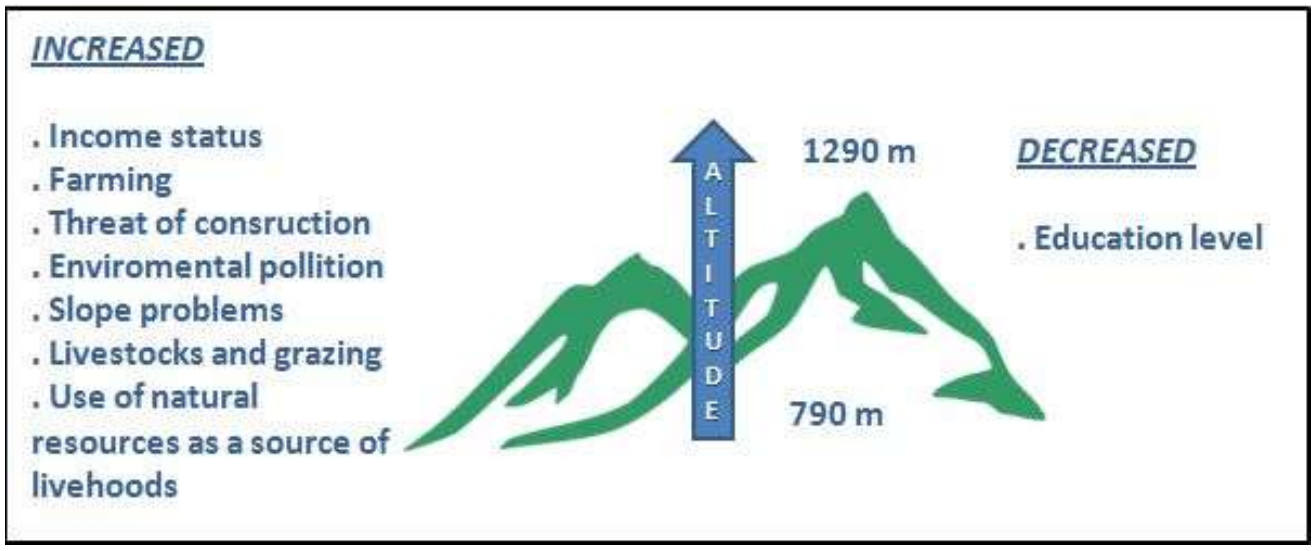

Figure 2. Differences according to elevation classes
Çizelge 2. Yükselti sınıflarına göre farklılıklar

As a result of the evaluation, it was determined that the income level increased with the elevation. Many previous researches have indicated that the income level has decreased. In particular, Tas and Yakar (2010) states that the settlements over 1400 m are composed of stony rocky areas and thus cannot be

used economically. However, this result is important in terms of revealing identity change in mountainous areas. It has determined that the level of education decreases with elevation (Figure 2).

The importance of the grassland and the use of natural resources as a livelihood resource for livestock breeding have increases together with the elevation.

In addition, it has been determined that there was an increase with elevation increases in environmental pollution caused by the threat of construction, slope problems, traffic and heating.

The Impact of Land Cover on The Use of Natural Resources by Local People

In this study, the distribution of the survey according to land cover is 43% in agricultural land and 57% in forest land. The income level of the local people living in forest land cover, the use of natural resources for heating purposes, and the number of young individuals were found to be higher than those living in agricultural land cover. The importance of plant collector in forest land cover, importance level of natural disasters on natural resources the importance of grassland areas and the threat of construction increase (Figure 3).

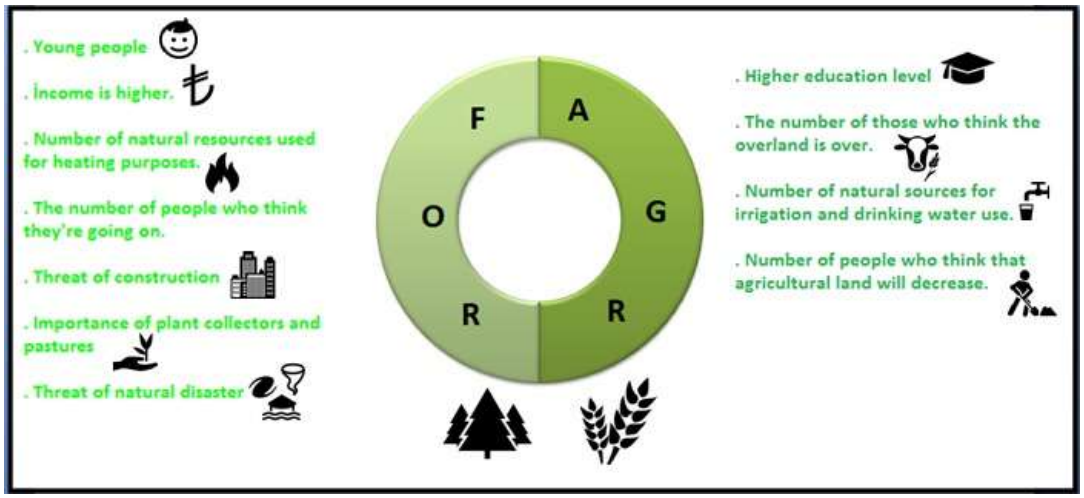

Figure 3. Differences according to land cover classes
Çizelge 3. Arazi örtüsüne göre farklılıklar

In the study, it was concluded that forest areas have a positive effect on the income level and livelihood activities of the local people. This result were supported by results which shows that there is a high correlation between the existence of natural assets and the diversity of livelihood activity. This result is supported by many studies revealing that forests and farmland are the areas where human interaction is most intense (Tağıl, 2007; Yan et al., 2010; Özşahin, 2014). However, as a result of this study, the level of education in agricultural areas was higher than forest areas. It was determined that the threat of structuring and the threat of natural disaster increased. Less education level in forest areas is an important result.

It is seen that the level of education is higher in individuals living in agricultural land cover. The use of natural resources for irrigation and drinking water The ratio of those who think that the agricultural lands will decrease in the coming years and the ratio of those who think that the plateau over is higher.

CONCLUSION

This study, which have carried out in Kahramanmaraş Ahir Mountain, has important results for both Turkey and the world, in which the nature conservation studies and the sustainability of natural resources have been gained importance. In the scope of the study, evaluation of the socio-economic and cultural structure as well as physical data is an important approach in terms of nature conservation activities. As a result of the study, it was determined that physical environment conditions were effective in the interaction of the local people with the environment in mountainous areas. It was determined that physical environment conditions in mountainous areas affected the income level, educational status, variety of livelihoods, diversity and degree of environmental pressures, recreational attractiveness and perspective of life.

As a condition of physical environment elevation and forest land cover, social and cultural structure, income level positively affected, while the educational status has been determined to affect negatively. It was also determined that the elevation and forest land cover diversified the livelihood and increased the recreational attractiveness and accordingly the environmental pressure increased. In addition, it was determined that the ways of benefiting from natural resources varied as plant collecting, animal

husbandry and recreational activities.

Such studies in which socio-economic and cultural structure are evaluated become important for the holistic planning of mountainous areas. The method followed during the study; The method of correlating the results of the survey with the physical environment to determine the interaction of the local people with the natural environment is the method which can be used in the planning decisions of the socio-economic and cultural characteristics and the nature protection. Based on the results obtained, the following recommendations have been developed to guide nature conservation activities in Ahır Mountain.

When the research area is evaluated in terms of physical data, it has a rich potential for flora and fauna. But, on this potential have creating pressure human interventions such as the summer home-made, recreational activities, over-cutting, hunting, unconscious grazing and mining.

For the flora and fauna, important and sensitive areas should be protected and zones should be established around the protected areas and their connections should be provided through green corridors.

It is observed that plant gathering and apiculture emerged as a source of livelihood at different elevations within Ahir Mountain. Ahir Mountain is used for grazing. Grazing pressure on forest areas and high mountain stebi can damage flora and fauna.

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Statement of Conflict of Interest

Authors have declared no conflict of interest.

Author's Contributions

The contribution of the authors is equal.

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