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## An ecologically based recreation tourism greenway planning: Erzincan Eksisu Reeds – Altintepe and Saztepe Tumulus route

### Ekolojik temelli bir rekreasyon turizm yeşilyolu planlaması: Erzincan Eksisu Sazlığı – Altintepe ve Saztepe Höyükleri güzergahı örneği

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#### Abstract

Today's uncontrolled increase in population, irregular urbanization, and technological development create disconnections in the landscape system. These fragmentations can only be avoided by establishing links. Corridors connect parts of landscape, prevent the landscape parts' destruction, and create spaces for the continuity of life. Corridor systems are planned not only for ecological but also cultural, historic and recreational usage. In this study, Eksisu Reeds which is located in Üzümlü, Erzincan, and it's around corridor which covering the historic tumulus, recreation tourism greenway feasibility which based on ecological basis was investigated. Which included in this context a limit has been established. Within this limit, maps were formed in GIS and current situation analysis was conducted. Then, a survey was conducted with 200 people in the city and as a result of survey, landuse decisions suggested this corridor within the working limits can be planned as an ecologically based recreation tourism greenway. Results showed that, 19.7% of people who live in the city would like to increase picnic areas, 17% would like to have navigation points and 16.8% would like to transform spas into resorts. 18.9% of students would like to increase the number of picnic areas, 16.2% would like to see recreative activities in the pond and 15.5% would like to have navigation points. 51.6% of people who live in the city and 8.4% of students have visited Altintepe. The greenway planning necessity which examined in this research is supported by the obtained data.

#### Özet

Günümüzdeki kontrolsüz nüfus artışı, çarpık kentleşme ve teknolojik gelişmeler gibi pek çok durum peyzaj sisteminde kopmalar meydana getirmektedir. Bu kopmaların önüne ancak oluşturulan bağlantılarla geçilebilmektedir. Koridorlar peyzaj parçalarını birbirine bağlar, küçülüp yok olmasını engeller, canlı yaşamının devamlılığı için alanlar oluşturur. Koridor sistemleri sadece ekolojik amaçlar için değil, kültürel/tarihi ve rekreasyonel kullanımlar için planlanırlar. Bu çalışmada; Erzincan ili Merkez ve Üzümlü ilçe sınırları içerisinde bulunan Eksisu Sazlıklarını ve çevresindeki tarihi höyükleri içine alan koridorun ekolojik temele dayanan bir rekreasyon turizm yeşilyolu olabilirliği incelenmiştir. Bu bağlamda Eksisu Sazlıklarını, tarihi höyükleri, çevredeki bazı kırsal yerleşimleri ve rekreasyon alanlarını içine alan bir sınır oluşturulmuştur. Bu sınır dahilinde alanın CBS ortamında haritaları oluşturulmuş ve mevcut durum analizi yapılmıştır. Ardından, kent içinde 200 kişi üzerinde gerçekleştirilen bir anket çalışması sonucunda çalışma alanı sınırları içerisindeki koridorun ekolojik temelli bir rekreasyon turizm yeşilyolu olarak planlanması yönünde öneri alan kullanım kararları verilmiştir. Gerçekleştirilen anket çalışması sonucunda kent halkının %19.7'nin piknik alanlarının artırılmasını, %17'si seyir noktaları yapılmasını, %16.8'inin kaplıcaların tesislere dönüştürülmesini istedikleri; öğrencilerin ise %18.9'unun piknik alanlarının artırılmasını, %16.2'si gölette rekreatif faaliyetlere yer verilmesini, %15.5'inin seyir noktaları yapılmasını istedikleri bulunmuştur. Ayrıca anket sonuçlarına göre kent halkının %51.6'sının, öğrencilerin ise %10.3'ünün Altintepe'den haberdar oldukları, kent halkının %5.4'ünün, öğrencilerin ise %8.4'ünün Altintepe'yi ziyaret ettikleri görülmüştür. Bu çalışmadan elde edilen veriler, uygunluğu incelenen yeşilyol planlamasının gerekliliğini desteklemektedir.

## INTRODUCTION

As of today, 2.8 billion people live in urban areas around the world. Urban areas, which attract people thanks to economic and social opportunities they provide, are now facing such problems as air, water and noise pollution,

inadequacy of open and green spaces and insufficient transportation. It is estimated that three fourths of the world population will be living in cities at the end of the 21st century. It is doubtless that this increase will worsen the existing negative impacts on urban environments even further (Vasconcelos 2006). Unfortunately, urban

development mainly focuses on buildings, and elements of natural environment are generally neglected. This, in return, creates deteriorated environments that are far from being sufficient for human beings and responding to their needs Eckbo (1964).

Academic, civil and political moves relating the environment that started off especially in the 1970s, continued in the 1980s and afterwards, and resulted in significant changes in planning approaches of countries. In parallel with all these improvements, increasing non-ecology based planning and poor implementations of them posed pressure on the landscape, causing deteriorations in the integrity of landscape, which result in numerous irreversible problems. Areas suffering the most from this include the rural environment and natural resource values, and the impacts are ever increasing every other day. According to Coşgun Hepcan (2008), 'the anthropogenic pressures that were accelerated by the industrial revolution and which turned into more evident impacts in the century we are in can be observed in natural landscapes and ecosystems in different forms and levels, and cause utterly devastating effects for natural cycles. As a result of this, loss of natural areas and biological diversity around the world has reached an unmatched level. Underlying causes of this situation are short-term policies and implementations that are meant to meet socio-economic expectations. Therefore, landscape planning and implementations are obliged to follow the developments and eventually lose the power of leading planning efforts. Apart from that, another main problem is the fact that ecological elements and priorities are not taken into account during the physical planning process. All of the above mentioned points are the barriers hindering sustainable protection of natural areas. Area usages for urban, industrial, agricultural and other purposes deriving from the increasing human needs in parallel with population growth constitute the most widespread causes of fragmentation of habitats. The experienced process has a growing influence on extinction of species Deniz et al. (2006). These pressures on the landscape turn fragmentation an inevitable result. Fragmented habitat patches cause loss of life space for the living on the one hand, while they detract human beings from natural environments, and negatively affect

them in physical and mental terms, making them monotonous in nature, on the other. Sustainability of natural species, which are so crucial for the living elements of nature, can only be maintained through connections. Presently, it is possible to see successful examples of greenways in cities of western countries, which are planned in order not to lose open green spaces, to preserve the ecological balance and create habitable environments. Greenways are linear corridors preserved to increase the environmental quality and provide alternative outdoor recreational activities Arslan et al. (2004). Even though they have more types, greenways, created with the main purposes of nature protection and recreational tourism, basically include ecological, recreational and tourism corridors.

Main goal of the current study is to investigate whether this special area called "Ekşisu Reed [literally: reeds]" located in the borders of Erzincan city center and Üzümlü district, Erzincan, Turkey, which is integrated with historical, cultural and ecological values of the surrounding regions according to collected data, can be transformed into an ecology-based recreational and tourism greenway in respect to opportunities offered by the area and human needs. Specific objectives of the study based on this main goal include:

To create a corridor that will protect the ecological value of Ekşisu Reed and maintain access to quality green spaces,

- To maintain access to tombs bearing historical and cultural importance, without harming the ecological value of Ekşisu Reed,
- Ensuring an ideal transition between the urban and rural areas, to create an alternative transportation route surrounded by uninterrupted 'green',
- To form areas that will enable users' cycle, hike and ride and do similar activities through this alternative corridor,
- To increase the awareness of locals and domestic and foreign tourists visiting the city of the natural, historical and cultural values of the city,
- To provide the opportunity of sightseeing between the urban areas and rural areas,

- To form tourism routes for tourists visiting the city, to make economic contributions to the city and the rural life along the corridor.

Whether the sample corridor of Erzincan Ekşisu Reed, one of the 135 wetlands that bear international importance, and Altintepe-Saztepe route can be transformed into an ecology-based recreational and tourism greenway that links the city with rural areas will be investigated in certain steps.

## MATERIAL AND METHODS

### Material

There exist many elevated plains surrounded by high mountains in the Eastern Anatolia, which is the highest

and most mountainous region of Turkey. One of the most prominent one of these is “Erzincan Plain”. Erzincan Plain, is surrounded by Esence (Keşiş) Mountains on the north, and by Munzur Mountains on the south, located on the North Anatolian Fault Zone (NAFZ), where tectonic activities have yet to end Akkan (1964). On the north of Erzincan Plain, there lies a wetland, the primary cause of which was the tectonic activities. This wetland, located on the south of Esence (Keşiş) Mountains and mostly on the NAFZ, covers an area of about 15 km<sup>2</sup> Sunkar and Taşkıran (2011).

Ekşisu Reed and the corridor that covers Altintepe – Saztepe historical mounds that are located on the south and southeast of the reeds constitute the main material of the current study (Figure 1).

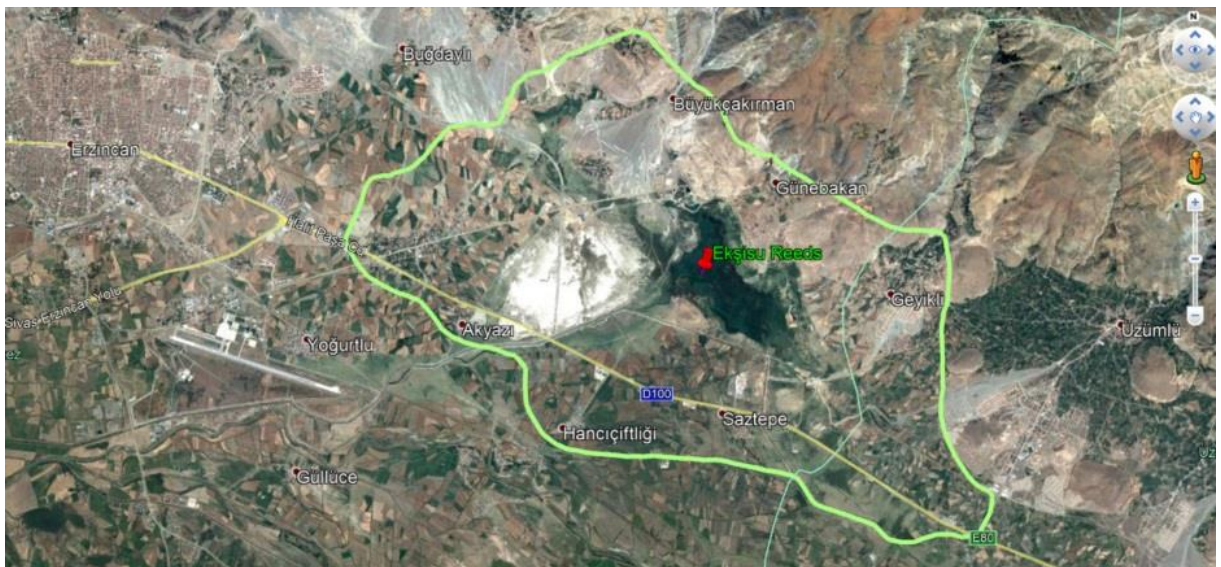


Figure 1. Workspace satellite view (URL-1, 2016)

Other materials used in the study include the zoning plan of Erzincan province, satellite images, management and development plans drafted for Ekşisu Reed, visitor strategies, workshop reports, various charts, graphics, maps and figures, notes made and photographs taken relating the area, a questionnaire study conducted with local residents and students living in Erzincan, visitor opinions, academic dissertations, documents and brochures published about Erzincan, Ekşisu, Altintepe and other values of the study area.

A total area of 4884 ha (consisting of Ekşisu Reed, which is located 11 km east to the city center of Erzincan, hosts numerous species of plants and birds, is surrounded by spring waters, is one of the 135 wetlands that bear international importance in Turkey and covering an area of 2372 ha, the historical mounds located around the reeds and several rural settlements) was determined as the study area. Ekşisu Reed is located at the junction point of the borders of Erzincan central district and Üzümlü district. Located on the south and southeast of Altintepe and Saztepe mounds, respectively, this reed was taken under protection as an archeological site.

Apart from being an archeological site, Eksisu Reed is listed as a ‘key natural area’ and a “key birds’ area” thanks to numerous species of plants and birds it hosts.

The Saztepe and Böğert Kükürt springs located in Eksisu Reed are the saltiest waters of the entire Erzincan plain. Hydro carbonated waters here are rich in calcium and magnesium. Their electrical conductivity levels range 1600 – 3700 micro mho /cm. C3S1 and C4S1 are hard waters classified in irrigation waters with high levels of salt and low sodium. Even so, these water sources are not used in irrigation unless there is a desperate need Özcan and Özmen (2008).

Eksisu, which has been taken under protection in recent years, is an important birds’ asylum and a wetland bearing a wide variety of species. Apart from regular marsh plants, there grow many different species of plants that adapted to salty environment in the reeds. In 1984, Turkey acceded to the Bern Convention on the Conservation of European Wildlife signed in 1979. According to that Convention, Eksisu Reed is among the protected salty marshes. Besides, it is the only habitat of Erzincan Sütotu (*Sonchus erzincanicus*), which is mentioned in the Annex of the Berne Convention as an endemic species of this area Özhatay (2006).

Known as a birds’ heaven, Eksisu Reed, also serves as a shelter for many animal species as reptiles and mammals ODM (2012). There are two historically important mounds – namely Altıntepe and Saztepe, brought under protection as archeological site (Figure 2 and 3).



Figure 2 Altıntepe



Figure 3. Saztepe

Located about 11 km away from the city center, Eksisu Reed can be reached easily through a motor road. Besides, people can visit the area using the public transportation service provided by Üzümlü Municipality and other bus services put into service for this area.

Thanks to its geothermal resources, peculiar geography, and natural and cultural values, it enables people to get engaged in numerous outdoor activities. The Eksisu picnic area is the most widely preferred pastime spot for the residents of Erzincan.

Visitors are provided with many opportunities like catering, go karting, hiking, swimming and rowing.

## Method

The study was conducted in four phases: literature review and inventories, analysis, findings and investigations, and conclusion and suggestions. It is possible to break down these main phases into more detailed steps (Figure 4).

A questionnaire study was conducted around the city in order to identify the user profiles, recreational tendencies, preference of area and level of preference, user expectations and needs. The questionnaire was given to a total of 200 subjects (93 among the local residents and 107 among students that came to Erzincan to study). Aside from the personal characteristics of the participants, we aimed at determining their opinions about Eksisu Reed, needs and complaints. The questionnaire is made up of 24 questions in total. The first 5 questions relate to the demographic particulars of



the subjects. Questions 6 and 7 are meant to find out the recreational activities preferred in Erzincan and the areas visited for these recreational activities. The 8th question investigates the most prominent recreational spot in Erzincan. Questions no 9, 10, 11, 12, 13 and 14 relates to the status of existing utilizations of Ekşisu Reed, frequency and intervals of utilizations. The 15th, 16th and 17th questions, on the other hand, are meant to assess the awareness level about Altıntepe and Saztepe. The rest of the questions are designed to get the opinion of locals about re-planning the area in the form of a

greenway. Extra attention was paid to make the questions as intelligible as possible. Both closed and open-ended questions are included in the questionnaire. Microsoft Excel 2010 and SPSS 16.0 package software were employed to assess the data gathered through the questionnaire study.

Percentage values of all the questions were found and non-parametric correlation test was run on certain questions.

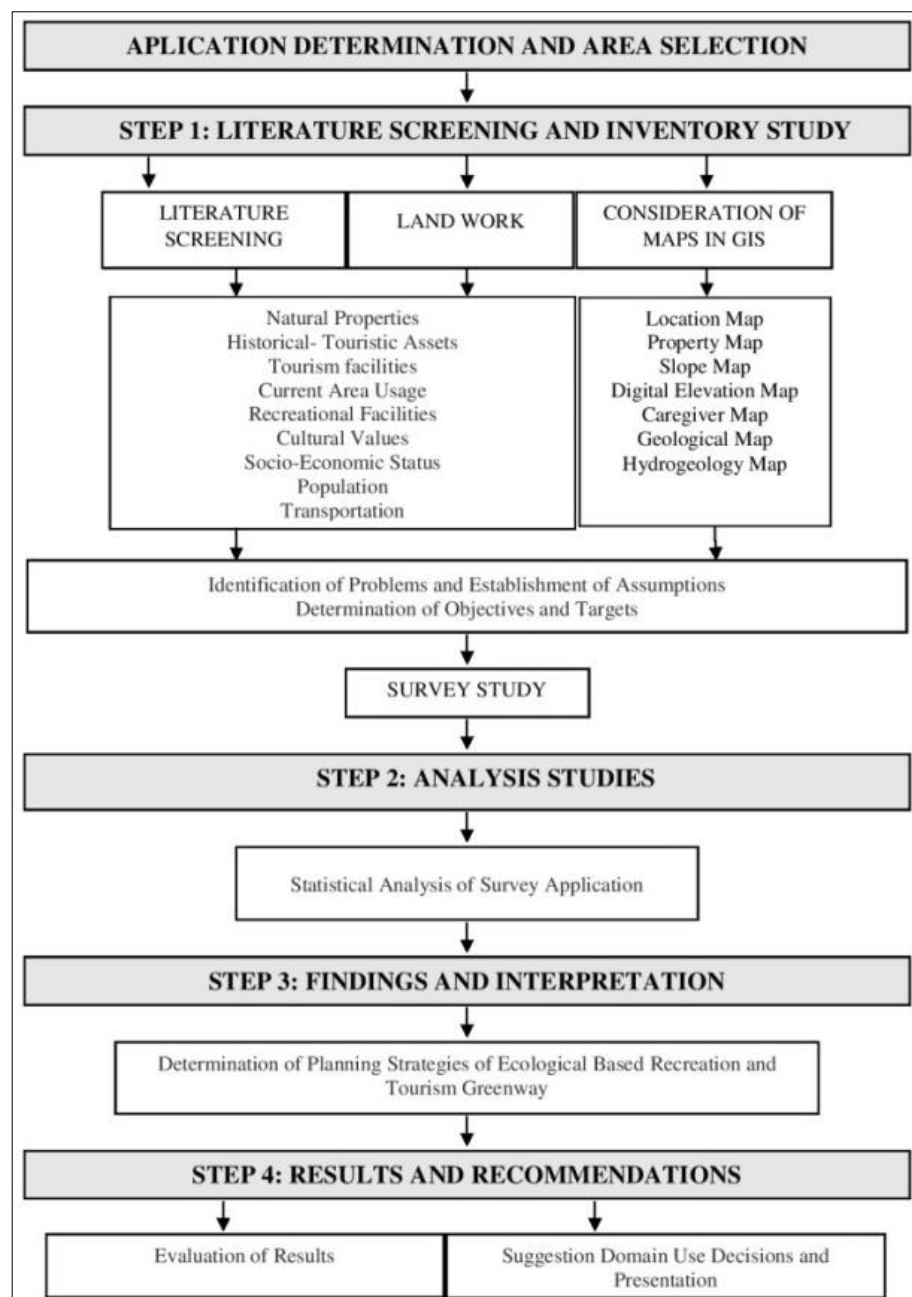


Figure 4. Method workflow diagram

## RESULTS

### Obtained data from survey/questionnaire

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The local resident of the city who picked the ‘other’ option indicated they prefer using their private spaces for recreational activities, and students, on the other hand, stated that they would rather use the recreational spots located within the campus or in the city, rather than the ones located away from or around the city.

95.6% of the local residents responded affirmatively to the question “Do you know Eksisu Sazlığı?” while the figure dropped to 69.2% in students. It was found out that 51.6% of the local residents and 10.3% of the students were knowledgeable about Saztepe and Altintepe; and 5.4% of the local residents and 8.4% of the students visited both Eksisu Sazlığı and Altintepe. The information about the survey questions and the answers with the highest values are given in the form of a Table 1.

**Table 1.** Survey results

What do you use for your recreational activities?	Local residents (93 people)	Students (107 people)	What are the first recreation and tourism areas that come to mind in Erzincan?	Local residents (93 people)	Students (107 people)
Diğer	35.5%	67.5%	Eksisu	32.8%	45.3%
What are your reasons for choosing Eksisu ?	Local residents (93 people)	Students (107 people)	How often do you go to / come from Eksisu?	Local residents (93 people)	Students (107 people)
Picnic areas	57.4%	55.8%	Once or twice a year	46.2%	68.2%
Which months do you prefer to go to Eksisu?	Local residents (93 people)	Students (107 people)	For which purpose are you going to / come from Eksisu?	Local residents (93 people)	Students (107 people)
June-July-August	80.4%	42.2%	Picnic	76.6%	69.2%
How long will you stay on this area?	Local residents (93 people)	Students (107 people)	What do you think about these historical places (Saztepe and Altintepe tumuluses)?	Local residents (93 people)	Students (107 people)
3-4 hour		27.1%	I would like to see that places but I did not have a chance	44.1%	75.7%
For half a day	38.7%	27.1%	What activities do you think you can be done also you want to do in the corridor that includes the Erzincan Eksisu Reeds and the Altintepe-Saztepe?	Local residents (93 people)	Students (107 people)
Which of the following activities did you execute in the corridor that includes Erzincan Eksisu Reeds and Altintepe-Saztepe?	Local residents (93 people)	Students (107 people)			

**Table 1.** Survey results (continued)

What do you use for your recreational activities?	Local residents (93 people)	Students (107 people)	What are the first recreation and tourism areas that come to mind in Erzincan?	Local residents (93 people)	Students (107 people)
Open area / eating and drinking	19.2%	-	Open area / eating and drinking	12.5%	-
Photography	-	14.5%	Photography	-	11.5%
<b>What are the positive aspects of this corridor (corridor containing the Erzincan Eksisu Reeds and Altintepe-Saztepe tumulus) in terms of recreation and tourism?</b>			<b>What are the negative aspects of this corridor (corridor containing the Erzincan Eksisu Reeds and Altintepe-Saztepe tumulus) in terms of recreation and tourism?</b>		
Recreational opportunities	35.5%	-	No comment	32.3%	73.8%
No comment	-	63.5%			
<b>Which feature attracts you most to this corridor (corridor that covers the Erzincan Eksisu Reeds and Altintepe-Saztepe tumulus)?</b>			<b>Which property would you like to be at the forefront of this corridor (Corridor of Erzincan Eksisu and Altintepe-Saztepe tumulus) in a tourism planning to be done?</b>		
Eksisu	17.3%	-	Natural areas	14.7%	15.8%
It's nature	-	17.3%			
<b>What do you want to do in this corridor (corridor that includes the Erzincan Eksisu and Altintepe-Saztepe tumulus) as a recreation and tourism purposes?</b>					
Picnic	76.6%	69.2%			

As data were not in normal distribution, the possible correlations among the status of awareness of the participants (residents and students) about Ekşisu Reed and the status of their awareness of Saztepe and Altintepe, and whether visitors of Ekşisu Reed also visited Altintepe were assessed in Table 1 and 2 in accordance with Sperman correlation test. A significant positive correlation was spotted between the status of awareness of the local residents about Ekşisu Reed and

the status of their awareness of Saztepe and Altintepe (Table 2)

A significant positive correlation was found between the status of awareness of the participating students about Ekşisu Reed, the status of their awareness of Saztepe and Altintepe, and visiting both Saztepe and Altintepe. In other words, those who know about Saztepe-Altintepe also know about Ekşisu Reed, and visitors of one place visited the other one as well (Table 3).



**Table 2.** The relationship between the knowledge of Saztepe-Altıntepe and the cases of visiting at the same time

		Knowing the Ekşisu Reeds	Knowing Saztepe-Altıntepe	Visiting Ekşisu and Altıntepe at the same time
Knowing the Ekşisu Reeds	Correlation Coefficient	1.000	.219*	.051
	Severity Level	.	.035	.630
	Number of Subjects	93	93	93
Knowing Saztepe-Altıntepe	Correlation Coefficient	.219*	1.000	.135
	Severity Level	.035	.	.196
	Number of Subjects	93	93	93
Visiting Ekşisu and Altıntepe at the same time	Correlation Coefficient	.051	.135	1.000
	Severity Level	.630	.196	.
	Number of Subjects	93	93	93

**Table 3.** Relationship between students's knowledge about Ekşisu Reeds and Saztepe Altıntepe and visiting them at the same time

		Knowing the Ekşisu Reeds	Knowing Saztepe-Altıntepe	Visiting Ekşisu and Altıntepe at the same time
Knowing the Ekşisu Reeds	Correlation Coefficient	1.000	.226*	.016
	Severity Level	.	.019	.867
	Number of Subjects	107	107	107
Knowing Saztepe-Altıntepe	Correlation Coefficient	.226*	1.000	.230*
	Severity Level	.019	.	.017
	Number of Subjects	107	107	107
Visiting Ekşisu and Altıntepe at the same time	Correlation Coefficient	.016	.230*	1.000
	Severity Level	.867	.017	.
	Number of Subjects	107	107	107

### Planning strategies

The study area, which is composed of different landscape patches, enables numerous activities. However, the findings of the questionnaire indicate that users do not know about the area at a sufficient level, they generally make use of the opportunities of the picnic area, and they long for a wider variety of activities. This is an obvious indicator of poor planning. What we resolved out of these findings is a greenway to be created in the area will compensate the insufficiency of

opportunities that participants moaned in the questionnaire.

Landscapes should be evaluated and planned in accordance with their potentials and special needs. In this respect, the area within the borders of the planned greenway was marked with different color schemes as per the analyses carried out through GIS programs. Different spots were marked in terms of protective, defensive, offensive/recovery and opportunistic planning strategies, and suggestions relating utilizations

of the area were made for each color scheme in parallel with defined strategies (Figure 5). On the map red region refers to tourist villages, pink region recreation areas, purple region Eksisu Reeds recreation area, brown region cultural tourism areas, yellow region organic

farming tourism, navy blue region thermal tourism, gray region restoration and rehabilitation areas, blue region Eksisu Reeds protect area, green region buffer protection zone.

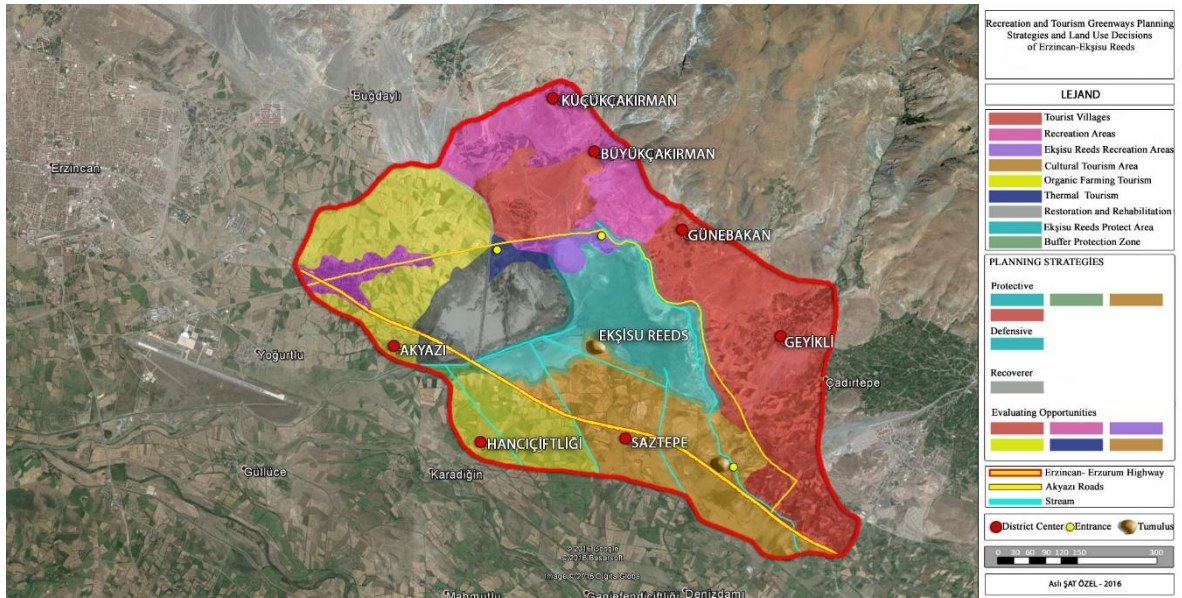


Figure 5. Recreation and Tourism Greenways Planning Strategies and Land Use Decisions of Erzincan-Eksisu Reeds

## DISCUSSION

Rapidly growing population and therefore steps taken to be able to meet the needs of increasing population cause irrecoverable damages on nature and human beings. Every other move realized without taking the nature into account endangers the future of mankind. Increasing urbanization pulls apart people from the nature and confines them to concrete blocks. In this way, urbanization forces human beings to lead a monotonous life, unaware of the values they actually have. It is a pleasure to see the notion of 'sustainability' has been uttered more often in recent years. This indicates that people have started to feel concerned about their future and now are trying to do something to prevent approaching hazards. Nature suffers the most from poor planning and damages created by people without thinking about the future. Nature means human, and every wound it suffers is actually a loss of today and future of the mankind. Faulty steps taken in the name of urbanization split off the cities from the rural environment, divide the nature into fragmenta, and drive natural values to extinction. According to Filink and

Searns (1993), corridors, whose length generally surpasses its width, are the areas that connect other areas with different landscape characteristics Kurdoğlu (2009). Maintaining sustainability of natural, cultural, social and historical values, corridors ensure the protection of all the values they are related with. Corridors that harmonize natural and recreational values are called 'greenways'. Greenways are the connections that can be the solution for fragmentation problem, especially in cities. While forming a holistic system by combining the fragments of habitats together, they protect the values they host and ensure their sustainability. Greenways are linear open spaces generally created along a natural corridor like riverbanks, valleys and ridges or railroads, channels and sightseeing paths that are transformed for recreational use. Starting with Olmsted's park roads and finding their shape with endeavors of Howard, MacKaye, Lewis and Whyte, greenways have been widely implemented at present Little (1995). In this respect, many studies have been conducted on greenways. The notion of greenways and their functions were evaluated in a detailed way and information was presented relating sample

implementations. In his work, (Ahern) presents a detailed analysis of greenways and the planning strategies he devised for greenways. Besides, he classifies the greenways and focuses the discussion on three types of areas.

In his work where he evaluates the steps of and changes undergone by greenways over time in three phases, Searns (1995) informs us about the functions of greenways. Arslan et al. (2004) stresses in their project “Planning Greenways: Example of Ankara” that green spaces have to be spared for public use in cities with high levels of urbanization. In this respect, he suggests formation of a greenway project which connects ecological, cultural and recreational resource values within the city of Ankara. In his work, Arslan explains the notion of greenways, their functions, planning phases and example implementations. In her PhD dissertation “A research on planning of Hamsiköy-Zigana village route in former Trabzon-Gümüşhane state highway as a greenway”, Kurdoglu (2005) comprehensively investigates greenways as well. In the work, which includes part of the historical Silk Road, she discusses the possibility of planning the route in the form of a greenway according to results of various analyses, and makes different suggestions about future planning.

In his PhD dissertation “Development of urban river corridors and concept greenway plan of Ankara Stream”, Pekin suggests a greenway model based on a river corridor. In this work, the term “greenways” are discussed in detail and examples from abroad are presented. Salıcı (2009), discusses in her PhD thesis called “Investigating the greenway potential of Seyhan River along the axe of Çatalan River Dam Lake and Deli Burun” planning and design phases of green corridor systems in the example of Seyhan River, Adana. In this work, where she mentions the term of corridor, its types and sample implementations, a methodological approach is suggested for planning a recreation-oriented corridor system using different methods. A greenway protects ecological values, as well as providing recreational opportunities. Similar to various greenway planning works examined, it was projected in the current study that the study area could be transformed into a

corridor that will protect the ecological, historical and natural values contained within the route in question, maintain their sustainability and provide access opportunities for people around it, connecting the city center with rural areas. In the scope of the study, an example border was drafted for the corridor, comprising the reeds, rural settlements surrounding it, as well as historical and recreational areas starting from the end of the urban areas. Üzümlü district and other settlements can be connected to the system on the other end of this proposed corridor, whose probability is discussed in the study, and planning can be made accordingly. In the future, these continuous systems have the potential to form a greenway that will connect the two urban areas.

The results of the analysis clearly show the wishes, complaints and suggestions of the users. As a result of the research, the maps prepared in GIS have been superposed and the layouts of the field facilities have been prepared. Available data, user considerations, potential of area have been determined. As a result of all these analyze, in the direction of Ahern's (1995) strategies, the following main planning decisions have been made:

- Protective: Targets to protect reed and historical mounds
- Defensive: Recovery of drying area and gain new qualifications
- Recoverer: protection of reed area and Eksisu and also ensure continuity of these areas
- Evaluating Opportunities: The targets which are for planning to Eksisu recreation area, historical mounds and surrounding areas which have natural, historical, cultural and recreational potential.

The drying of marshy areas can be a result of natural situations or human intervention. Dry the marshy areas without required precision means that destruction of flora and fauna and thus deterioration of ecological balance. Important problems arise after the marshy areas are dried without required studies are carried out. Therefore, before drying, marshy areas and its around should be analyzed in terms of geographical. In this context, geological, geomorphological, hydrological and

biological features should be evaluated Sunkar and Taşkıran (2011).

There are many prominent features of flora on the edge of water sources, like stabilization of water source coast, continuation of the aquatic food network, water temperature balance, nutrients transported from neighboring areas, containment of chemicals and sediments, reduction of flood effects, being wildlife living area Yılmaz and Çiçek (2003). According to Yılmaz and Çiçek, the zone between 10-15 is recommended to rivers and wetland depending on the size of these areas. By following an ecological approach, integrated planning decisions were made taking into consideration the abiotic-biotic-cultural landscape components existing within the determined boundaries.

## CONCLUSIONS AND SUGGESTIONS

### Conclusions

People have needed open green spaces since the early ages. Because of their beliefs and lifestyles, open green spaces have always been sacred for them. In our time, on the other hand, the need for open green spaces is even bigger due to chaotic and tiring atmosphere of cities and feeling of being stuck inside concrete masses. If these spaces are of good quality, they should especially be used with extra protection measures. As the need for a value and intensity of its use increase, the increasing damage on that value follows. Urbanization, population growth and increasing interest in open green spaces bring along various problems. Fragmentation, the leading landscape problem of our age, causes harm on both nature and human beings. The networks created in order to prevent fragmentation, on the other hand, enable access to natural, cultural and historical values. A connection system formed between urban and rural areas ensures sustainability between the areas, as well as harmonizing numerous values and enabling lots of recreational activities. Conclusions attained in the light of reviewed information and research findings in the current study are listed as follows:

- According to questionnaire data, the most frequently preferred area for recreational utilizations by local

residents and students in Erzincan, who picked ‘other’ option in the first place, is Eksisu Reed.

- In both groups, the first recreational and tourism area to come to participants’ minds is Eksisu Reed.
- The status of awareness of Eksisu Reed is 95.6% in the local residents’ group, while it is 69.2% in the students’ group.
- 46.2% of the local residents indicated that they visited Eksisu Reed once or a few times a year at most while 68.2% of the students did the same thing.
- More than half of the participants in both groups stated that they prefer Eksisu Reed mainly for its picnic areas.
- The percentage of causes of visits paid to Eksisu site is quite high. The most frequently preferred months to visit the area are June, July and August.
- Both groups indicated that they spent 3-4 hours to half a day in Eksisu route. The level of awareness of Altıntepe and Saztepe is 51.6% in the local residents and 10.3% percent in the students. Status of visiting both Eksisu and Altıntepe & Saztepe is 5.4% in the local residents and 8.4% in the students. 44.1% of the local residents and 75.7% of the students stated that they wanted to see Saztepe and Altıntepe, but they could not have time to do so.
- The most widely performed activity along the corridor is picnicking in outdoor spaces at a percentage of 19.2% in the local residents’ group, while photography is the leading activity in the students’ group at a level of 14.5%.
- The activity that is most frequently desired along the corridor is picnicking in outdoor spaces at a percentage of 12.5 in the local residents’ group, while photography is the most longed activity in the students’ group at a percentage of 11.5.
- Even though the majority of participant did not comment on potential positive effects of the green corridor, 20.4% of local residents believe it will have special natural values and 15.8% of the students believe it will contribute to the economy.
- Similarly, the majority did not have any idea about the negative effects of the planned corridor; yet, 25.8% of the local residents and 10.2% of the students assume that there will be problems caused poor planning and illuminating.

- The two features came to the fore among all the questions asked to participants were ‘the nature’ of the study area and its ‘sour water’
- To the question on what they would like to see in the area, most of the participant from both groups responded that they would rather see more picnic areas.
- When it comes to statistical analyses; the relationship between the status of awareness of the participants about Ekşisu Reed, the status of their awareness of Saztepe and Altıntepe, and visiting both Saztepe and Altıntepe was investigated through nonparametric correlation analysis. The analysis revealed significant positive correlations in both of the groups ( $p < 0.5$ ).
- According to analyses; the maps created in GIS, results of questionnaires and all the findings attained were compared, they were examined in the light of planning strategies according to characteristics of the area, and stains were suggested on the maps.

### Suggestions

Suggestions made in respect to the thesis on evaluation of Erzincan Ekşisu Reed in the scope of an ecology-based recreational tourism corridor based on greenways, the planning model connecting recreational, historical-cultural and ecological values, are presented below.

#### Suggestions about Planning:

The analysis of the thesis indicates that the reeds of the city are interconnected with the picnic areas. Participants do mention about numerous insufficiencies in the picnic areas, which are crucial for the city, caused by poor planning. First of all, through a planning that will serve the urban people better, the number of fittings placed in the picnic areas should be increased, and problems relating the environmental pollution seen in the questionnaires should be solved. As the only place re-arranged for human utilization in the venue is the picnic area, levels of awareness and utilization of the participants about this section are very high. Similarly, access can be maintained to the rest of the reeds and historical mounds in a protective planning strategy. In this way, people will be more aware of other sections of the reeds as well as the picnic areas, and therefore the

recreational activities they get engaged in will be proliferated.

The results of the questionnaires revealed that the local residents of the city do not perform the sports activities offered in the city. It can be inferred that the activity areas are inadequate in number or quality, and they are not taken to a point where people can continuously benefit from them. In this respect, several spots of recreational activities that can be reached with ease should be set up along the corridor.

It is so regrettable that people are generally unaware of the historical values located within the study area. By increasing means of access to the related spots, awareness of the city folk of the historical values can be raised. A network where not only the related people but also common residents mobile along the corridor will be able to do observations, go on ecological hiking and therefore learn about nature with first-hand experience can be established through a sound planning that will also prevent possible harms on the flora and fauna of the study area.

With the planned greenway, the connection between rural settlements will be set, and the villages in question will be offered for tourism activities. Enabling touristic visits in these villages to publicize the regional values and maintaining accommodation opportunities will make significant contributions to the local economy.

The area was divided into groups of different stains (colors) in terms of their potential on the suggested map. Area utilization decisions were taken for the stains determined in accordance with the greenway planning strategies.

Villages to be offered to tourism: The research conducted in the surrounding rural settlements revealed that the area has a cultural texture and ecological values, aside from a significant agricultural potential. These sections were included in the proposed corridor by making use of opportunistic planning strategy. We suggest that touristic activities should be conducted in the villages.



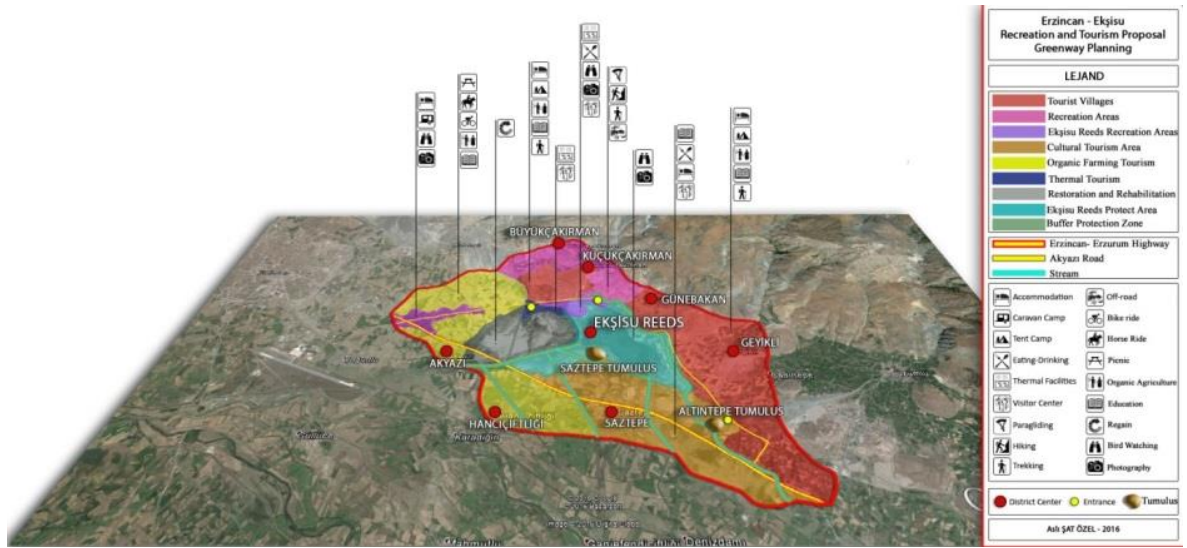


Figure 6. The suggested greenway planning for recreation and tourism in Erzincan – Eksisu Reed

**Recreational Areas:** Research shows that the study area has the potential to enable numerous types of sports, providing opportunities for people to be closely in touch with nature. This area was also included in the corridor making use of opportunistic planning strategy. Outdoor sports, recreational activities and accommodation facilities in natural environment are proposed for these parts of the study area.

**The recreational area of Eksisu Reed:** It was detected that the reeds is the most frequently utilized section of the broader area. This section was added to the planned corridor making use of protective and defensive planning strategies.

**Culture-Tourism Area:** This section, which comprises archeological sites and special cultural textures, was included in the proposed corridor in the light of opportunistic and protection strategies. Historical mounds and traditional lifestyle can enable observational and educational activities. Therefore, educational facilities, thermal activities, outdoor catering and accommodation facilities are suggested for this section.

**Organic farming tourism:** Agricultural locations were determined in the area. As per opportunistic strategies, organic farming, outdoor catering, educational facilities and riding/biking opportunities are suggested for these areas.

**Thermal tourism:** All analyses done in the area indicate that the region has a significant potential for thermal tourism and people have a tendency to use such facilities intensively. This section was added to the corridor making use of opportunistic greenway planning strategies.

**Restoration and Rehabilitation area:** A huge portion of the reeds was drained by the State Hydraulic Works at various intervals to gain agricultural land. Draining channels opened for this purpose occupy a large area within the entire plain. Offensive planning strategies should be employed for the area where draining work was performed. It is assumed that the drained area should be regained and included in the Eksisu reeds, which will increase the recreational tourism value of the land.

**Eksisu Reed protection zone:** It was found out that the area hosts various natural values. Numerous water sources, and plenty of plants and animal species clearly indicate that the reeds here are worth protecting. This section was added to the planned corridor making use of protective and defensive greenway planning strategies. Activities like bird watching and photography are suggestible for the area. It is believed that people can observe and experience the riches of the reeds in the scope of a planning that will not harm the natural texture.

Buffer protection zone: In accordance with the protective greenway planning strategies, a buffer zone was drafted in order to protect the streams and Eksisu. For this purpose, the water sources located within the study area were surrounded by a buffer zone of 10-50 m each.

Area utilization decision taken for the stains on the map determined in accordance with greenway planning strategies will ensure better utilization of the opportunities offered by the area, as well protecting the area itself. At the same time, the route will be planned compliant with a sustainable and ecology-based approach that is integrated with elements constituting the entire landscape.

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