

SALINE HABITATS AS UNDISCOVERED ECOTOURISM ATTRACTIONS

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Abstract

Saline habitats are primarily lined to arid and semi-arid areas, but today, it is noted an increasing percentage of salt affected soils in the world. Inland (continental) saline habitats, as a type of intrazonal and very rare ecosystems, represent a real challenge in utilization in terms of systematic ecological research and applicative aspects of sustainable agriculture activities, nature-based tourism, educational tours and special gastronomy offer. In the Republic of Serbia, saline habitats are primarily distributed in the northern part of the country, in Vojvodina's Pannonian Plain, but they are also found south of the Sava and Danube rivers, where they occur sporadically in the form of fragments or smaller localities in the central and southern Serbia. The main aim of this study is to present rare and untypical ecosystems, such as the saline habitats in light of their possible sustainable utilization through a socio-economic-ecological system for utilization in nature-based tourism and to raise the options for economic diversification in local communities.

Key words: *saline habitats, ecotourism, local economy diversification*

JEL classification: *Q57*

Introduction

Saline habitats represent unusual and interesting ecosystems that provide a wide range of different ecological (supporting and regulating) and socio-economic (provisioning and cultural) services (Williams, 2002). There is a range of saline habitats encompassing the pristine alkaline semi-deserts and mangrove forests, coastal vegetation on cliffs and sand dunes, natural

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grasslands on solonetz and solonchack soils, inland salt marches and some others (Kapler, 2019). Some types of saline habitats are closely related to wetlands and therefore the main benefits that they provide are maintenance of the water quality and supply, decrease in suspended matter, regulation of atmospheric gases ratio, carbon water regime regulation, pollutants retaining, sustaining the unique indigenous biota, protection of shorelines, and providing recreational, cultural and educational resources (Dise 2009; Haslam et al. 2009; Ramírez and Santana, 2019). At first, the saline habitats are the sites of unique biodiversity, but at the same time, positioned among the most vulnerable and sensitive ecosystems (Smardon, 2009; Ramírez and Santana, 2019). The main threats affecting the saline habitats are direct and indirect human activities, mainly related to activities in agriculture and soil melioration practices, in addition to, habitat alteration, mining, pollution, invasive species effects and human induced climate and atmospheric changes (Williams, 2002).

Saline habitats as internationally important and conservation recognized sites (Wallis De Vries, 2002) deserve attention in specter of nature-based tourism activities aimed to raise awareness of such habitats and their active protection. Ecotourism is a nature-based activity focusing on tourism-conservation symbiosis. Since the last decade, it has been advocated internationally as an alternative economic activity benefiting valuable ecosystems conservation since the last decade (Li-Pin Lin, 2012). Regarding ecotourism as an alternative tool of environmental management (Jamal and Stronza, 2009), it is important to wonder whether ecotourism potentials are associated with site resources, facilities and the socio-economic status. The aim of this study is to overview the values of inland saline ecosystems in ecotourism. The focus is put on the representative saline habitats in the Republic of Serbia, from the North (Pannonia plane) towards the south (Morava and Toplica river planes).

Saline habitats have an amazing potential for tourism, especially salt lakes, with its spectacular wildlife and dramatic seasonal changes of the landscape. In the R. of Serbia there are several protected saline sites (e.g. Slano Kopovo, Rusanda, Lalinačka slatina...) and more interesting sites that deserve to be exposed on the tourist map. *Saline habitats are specific ecosystems characterized by unusual, rare and endemic flora and vegetation well adapted to conditions of increased soil salinity (Fig. 1). In addition, there are many other interesting species, mainly birds, amphibians and reptiles.*

Figure 1: *Saline landscape with unique flora and vegetation*



Source: *Original photographs by M. Luković (july, 2013)*

Ecotourism in saline habitats can offer a large variety of activities such as bird watching, plants tours, enjoying landscape, education, excursion, passive recreation, photography etc.

Objectives of the study

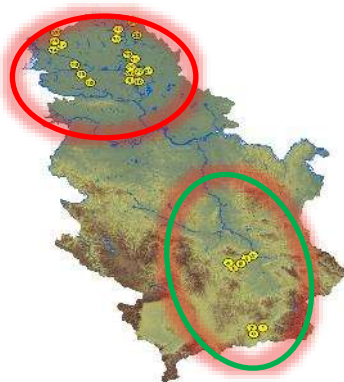
The main objectives of this study are to examine and overview the natural potentials of saline habitats in terms of ecotourism development and potential rural economy diversification in the Republic of Serbia. The data and information analyzed relevant to natural ecotourism resources were supported by secondary information sources like published articles, reports, maps and authors' previous work (Dajić Stevanovic et al., 2016; Šilc et al., 2020)

Study area

In this study, the inland saline habitats occurring locally, but in wide transect from the north (Pannonian plane) to the central and south Serbia are analyzed. In Southeast Europe, the highly salinized soils, such as solonchacks, are spread over about 70,000 hectares (e.g. Vasin, 2009; Dajić Stevanović et al., 2019). Although such soils are of limited distribution, they are very important from the aspects of a local use (Ćirić, 1989; Vasin, 2009; Luković, 2019). Such habitats predominantly occur in the form of mosaically distributed land parcels on more or less salty wider areas. Continental saline habitats are very well expressed in the Pannonian Plain, while on the south the occurrence of saline soils (especially solonchacks) is occasional (Zlatković et al., 2005). Within the territory of Vojvodina province, saline habitats are widely distributed in Bačka (about 25 000ha), less in Banat (5 000ha), and only small fragments could be found in Srem (Andrić, 2009). In addition to the fact that the saline habitats are primarily

linked to the Pannonian and Wallachian lowlands, and to the neighboring plain regions, it is important to note their distribution southern of the Sava and Danube rivers, where they occur sporadically in the form of fragments or smaller patches in the central (the valley of the Toplice River) and southern Serbia, mainly along the valley of the river Morava (Fig. 2).

Figure 2: *The overview of the most important saline sites in the territory of the Republic of Serbia*



Source: *Luković, 2019.*

Geographically, the most conspicuous saline habitats of the Pannonian Plain are located in Banat (e.g. Slano Kopovo, Melenci- Velika i Mala Rusanda, Kumanske slatine, Žabaljske slatine, Pašnjaci velike droplje etc.), as well as within the Bačka territory (Rančevo, Bački Brestovac, Ruski Krstur, Mali Stapar, Ridjica, Kruščić etc.). In the central and southern Serbia, the most important saline sites are found in the vicinity of the city of Prokuplje (Bresnicicka Slatina, Oblacinska Slatina, Lalinačka Slatina), but also in the area of Vranje, Bujanovac and Preševo (Aleksandrovac Slatina, Oslare, Levosoje, Ljiljanci).

General aspects of ecotourism potential of saline habitats

Saline habitats are remarkable biodiversity centers with the direct economic, social and ecological importance which should be used in a sustainable way to contribute to the development of ecotourism activities. Nowadays these unique ecosystems with a high number of rare, endemic, indigenous and vulnerable species are under the anthropogenic pressure, including the indirect human-induced threats (climate changes, secondary salinization), direct human impact (pollution, solid waste disposals, habitat alteration, building of infrastructure, etc.) and other influences, mainly the

agricultural activities (soil melioration, fertilization, tillage, irrigation, application of pesticides, overgrazing, etc), as well as the effects of invasive species (Williams, 2002). Because of a range of threats and the fact that saline habitats are fragile and vulnerable, they have to be managed in a very rational and well structured way for ecotourism benefits. The main issues, besides man-made ecotouristic facilities, relevant to ecotourism establishment are natural values of saline habitats such as habitat diversity, flora and vegetation diversity, protected areas (and sites in procedure of the official protection) and appropriate ecotourism activities on sites.

The value of saline habitats in ecotourism

The increasing attendance of landscapes and untypical ecosystems has led to the rise in popularity of the ecotourism, whose meaning is multiplied today (Donohoe and Needham, 2006). By definition, ecotourism activities stimulate development in accordance with nature conservation across Europe (Nepal, 2002) and the world. According to the UN-WTO (2016) the ecotourism accounts for over 20% of the total tourism travel. Ecotourism includes, among other things, visits to sites of untouched nature with superbly preserved natural values (flora, fauna, ecosystems, landscapes) with a high degree of management of these resources (Jacobson and Robles, 1992). The Republic of Serbia is one of the countries with outstanding natural values from high mountain ecosystems, through rivers, lakes, and forests, meadows towards very rare and unusual ecosystems such as continental saline habitats. In Europe, continental saline can be classified into two groups according to the basic types of vegetation: 1) dry continental meadows and pastures and 2) wet continental saline sites (Stevanović et al., 1995). Both continental types are recognized in Serbia as well, which are widespread in the Pannonian biogeographic region. According to the Annex I of the Habitats Directive (Council Directive 92/43 / EEC) they are listed among the priority habitat types, referring to Pannonian saline steppe and meadows, and Pannonian saline swamps. From the aspect of ecotourism development, the saline habitats have a number of representatives, diverse, authentic, landscape attractive, native and preserved natural values that give them an advantage over many other degraded ecosystems today. The peculiarity of these habitats is reflected in the preserved characteristic salt-tolerant succulent plant species (e.g. echinoderms – "cakljenjače" in Serbian- *Salicornia euroapea* or jurasses – "jurčice" in Serbian- *Suaeda maritima*), building plant communities on extreme very wet and very salty swamp soils, or occur in the drained saline ponds and lakes (e.g. thorns – "trnice" in Serbian- *Crypsis aculeata*). The authenticity of endemic and rare halophytic

species, as well as the attractive landscape of drained salt bars and lakes sometimes resembles the landscapes from some other planet.

The diversity of remarkable saline habitats in ecotourism

Saline habitat diversity is based on different types of saline soils, from moderately saline soils- the solonetz types, to the extremely saline solonchaks. Concerning the great range of saline habitats in Serbia, the following types can be featured as ecotouristically attractive: the Pannonian alkaline saline communities of the camphoric (*Camphorosma annua*), Pannonian alkaline saline sites of muddy inland grass "bezbridnjača" in Serbian (*Puccinellia limosa*), Pannonian saline steppes, and gourds of the coastal wormwood (*Artemisa santonicum*), or typical halophytic succulent communities on the solonchaks (communities of the *Salsola soda*, *Salicornia europaea* and *Suaeda maritima*).

Table 1: *Major saline habitats of importance for ecotourism*

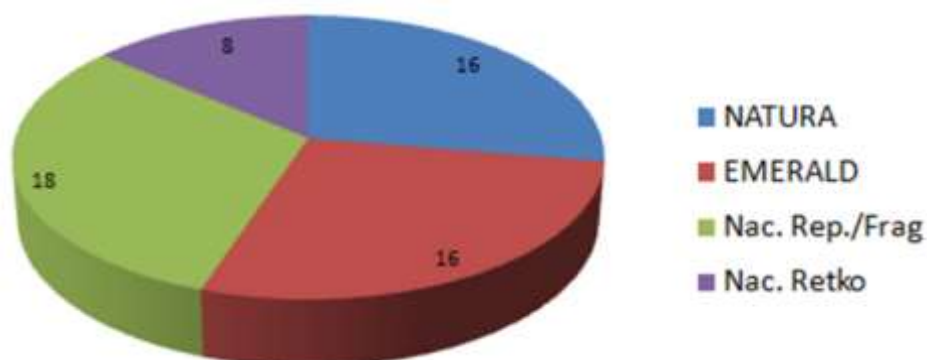
Habitat type	Attraction degree			PA/saline sites
	High	Medium	Low	
Pannonian alkaline saline of <i>Camphorosma</i>	+			PIO "Potamišje", SNR "Pašnjaci velike droplje"
Pannonian alkaline halophytic habitats with <i>Puccinellia</i>		+		NOB "Potamišje", NP "Rusanda", SNR "Slano kopovo", SNR "Okanj bara"
Pannonian saline steppe of <i>Artemisia santonicum</i>	+			SNR "Slano kopovo", NP "Slatine u dolini Zlatice"
Succulent halophytic communities on solonchaks	+			SNR "Slano kopovo", NP "Rusanda", SNR "Okanj bara"
Alkaline saline habitats of <i>Camphorosma monspeliaca</i> on the south of Serbia	+			NM "Lalinačka slatina", site Oblacinsko jezero
Pannonian alkaline halophytic communities of <i>Pholiurus</i>		+		NP "Slatine u dolini Zlatice", NM "Lalinačka slatina"

*PA- Protected area, NOB- Nature of Outstanding beauty, SNR- Special Nature Reserve, NP- Nature Park, NM- Nature monument

Source: *Authors' research based on Luković, 2019 and the documents available at the website of the Institute for Nature Conservation*

The functionality of protected natural resources, including the saline sites, is inextricably linked to their natural and cultural heritage and therefore represents localities of vital importance for the development of sustainable tourism, especially ecotourism. The touristic geographical position of the mentioned protected natural resources is relatively favorable and is located mainly along the larger roads, which makes the accessibility to the sites easier. Many of saline habitats are internationally important and therefore included in various European ecological networks such as Natura 2000, EMERALD or are designated as nationally important.

Figure 3: *The number of saline habitats identified on an international or national level*



(Nac./Rep.- National representative habitat for Serbia, Frag.-Fragile habitat, Nac./Retko-Rare habitat for Serbia)

Source: *Authors' research based on Luković, 2019 and documents available on web site Institute for nature conservation*

In Figure 3, it is provided a number of priority saline habitats occurring in Serbia, including saline grassy formations on the solonchacks, Pannonian grassy formations on solonetz, Pannonian steppes and grooves, Pannonian saline meadows on different soil types, Pannonian alkaline grasslands of *Pholiurus*, wet salt marshes, saline succulent communities, which all are internationally recognized and representative. Based on the literature review and our fieldwork results (e.g. Dajić Stevanović et al., 2016) there was identified the sixteen saline habitat types of priority to NATURA2000. Within the EMERALD network, 16 rare and vulnerable halophytic habitat types are recognized. Such habitats are also representative for the Republic of Serbia. In general, almost all saline habitat types (both inland and costal) with halophytic vegetation are in the process of extinction, which was stressed by many recent studies (e.g. Janssen et al., 2016; Šilc et al., 2020). Therefore, they require special conservation attention.

The diversity of representative flora and vegetation for ecotourism

Halophytic flora accounts for about 2% of the total studied terrestrial plants globally (Hamed and Custodio, 2019), supporting the fact that such specific flora and vegetation develop under the extreme habitat condition which results in poor species diversity. Although halophytic flora is not as abundant and diverse as the flora of the most of the other habitats, there is a strong peculiarity and range of their specific characteristics. According to the literature data, the total of 1188 plant species was determined within the Pannonian saline habitats, whereas 546 and 642 were found in the region of Bačka (Budak, 1998) and Banat (Knežević, 1990), respectively. Such high number of identified plants is attributed to wide consideration of saline habitats, including those of very low salinity.

The saline habitats of southern Serbia are characterized by significantly smaller distribution, with high fragmentation resulting in decrease in plant diversity. In the vicinity of Niš, it was recorded 205 plant species; 166 taxa are recorded in the area of Vranje and 104 in the area of Prokuplje and Kuršumljija (Zlatković et al., 2005).

According to our investigations, the saline habitats of our country (in their strict meaning) encompass the total of 539 halophytic species, out of 374 belonging to habitats of the extreme salinity (Dajić Stevanović et al., 2012; Dajić Stevanović et al., 2016; Luković, 2019). Of the 3662 plant species recorded for Serbia (Stevanović, 1999), halophytes make 14.7% of the Serbian flora.

Table 2: Review of representative flora of salt affected soils in Serbia of the highest conservation importance

Species	ECL	S.Z.	Z.	CKFS	CLFS	IUCN	IPA	CITES
Adonis vernalis		+			+	VU		+
Allium gutatum ssp. dalmaticum						CR		
Artemisia santonicum			+		+	EN-LC (DD)		
Aster tripolium ssp. pannonicum			+		+	VU		
Beckmannia eruciformis			+					
Camphorosma monspeliaca		+				CR		
Crypsis aculeate			+		+	VU-LC (DD)		
Crypsis shoenoides			+					

Species	ECL	S.Z.	Z.	CKFS	CLFS	IUCN	IPA	CITES
<i>Cyperus pannonicus</i>		+			+	NT-LC (DD)		
<i>Lepidium cartilagineum</i>		+			+	EN		
<i>Limonium gmelini</i>			+				+	
<i>Orchis laxiflora</i> ssp. <i>palustris</i>		+			+	EN-VU (DD)		+
<i>Plantago tenuiflora</i>			+		+	VU-NT (DD)		
<i>Plantago schwarzenbergiana</i>		+			+	VU		
<i>Puccinellia convolute</i>			+			CR		
<i>Salicornia europaea</i>					+	CR		
<i>Salsola soda</i>		+						
<i>Scirpus lacustris</i> ssp. <i>tabernaemontani</i>					+	CR-VU (DD)		
<i>Scorzonera parviflora</i>			+		+	EN		
<i>Spergularia marina</i>			+		+	NT-LC (DD)		
<i>Spergularia media</i>			+		+	VU		
<i>Suaeda pannonica</i>		+		+	+	CR		
<i>Stachys milanii</i>						CR		

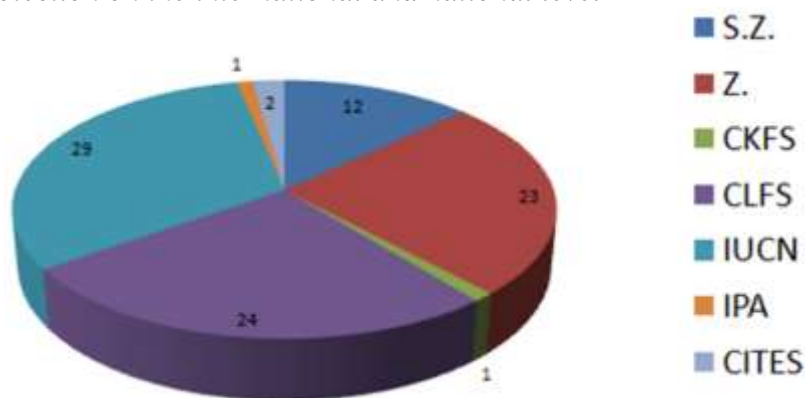
ECL- European red list, Bilz (2011), **S.Z.**- Strictly protected species i **Z.**- Protected species, Anonymous (2010b), **CKFS**- Red book of florae Serbia, Stevanović (1999a), **CLFS**- Red list of flora Serbia, Anonymous (2010b) , **IUCN** criteria, IUCN (2001), Stevanović et al. (1999), **IPA** criteria, Stevanović (2005);

Source: *Modified from Luković, 2019*

Table 2 gives an overview of the selected threatened halophytic flora, occurring on salt affected soils, both solonchak and solonetz type, which is classified according to national or international criteria into certain categories of protection or degree of threat, and therefore importance for biodiversity conservation. Due to their conservation value, these species could be of an interest for ecotourism activities, mainly botanical tours. Saline habitats in Serbia encompass a number of critically endangered halophytic species, which are included in Red list of flora Serbia. There is also another group of plants which is internationally recognized and the species which are listed as natural rarities which are strictly protected at the national level, such as: *Plantago schwarzenbergiana*, *Salsola soda*, *Scirpus tabernaemontani*, *Suaeda pannonica* etc. Some species, like *Plantago schwarzenbergiana* are listed on the European Red List and the IUCN Endangered Species List (Bilz et al., 2011). The species is the Pannonian endemic of international importance for the conservation of global biodiversity (Janjatović et al., 1990). In addition to the group of rare and important species within the IPA list (Stevanović et al., 1995), some others,

like Pannonian halophytic species *Limonium gmelinii*, give a special appearance to the Banat's saline habitats, due to its beautiful light purple flowers. An important halophytic species, which dominates in large number of halophytic communities, is the Pannonian sub-endemic plant, the *Puccinellia distans*. The species is the edificatory species and also have a value as a fodder plant (Dajic Stevanovic et al., 2010). In the range of strictly protected species, the most attractive are typical succulent halophytes on the banks of the salt lakes such as *Suaeda pannonica*, *Suaeda maritima*, *Salicornia europaea* etc.

Figure 4: The number of endangered halophytic species by degree of threat or protection on the international and national level



Source: Authors' research based on Luković, 2019 and documents available on web site Institute for nature conservation

Although saline habitats of the central and southern Serbia do not occupy large areas as in Pannonian basins, a significant number of endangered plant taxa has been indentified there, as well (Fig. 4). Several critically endangered salt tolerant species of the central and south Serbia have been included in the "Red Book of Serbian Flora" Stevanović (1999) such as *Stachys milanii*, *Allium gutatum* ssp. *dalmaticum*, *Camphorosma monspeliaca* and *Plantago coronopus* (Zlatković et al., 2005; Dajić Stevanović et al., 2016). In addition, there are also some endemic species recorded, like *Achillea crithmifolia*, *Diantus viscidus*, *Aster sedifolius* (Zlatković et al., 2005).

Protected saline habitats in the Republic of Serbia

According to data from the Institute for the Nature Protection of Serbia, there are 469 protected areas or 7.66% of the territory of Serbia is under

certain protection regimes. In the province of Vojvodina, protected areas cover 6.56% of the territory, corresponding with 135 protected areas. Out of the total number of protected areas, protected saline habitats are predominantly located within the territory of Vojvodina and include 9 sites (Table 3), which is close to 6% of total protected areas in Province. Only one saline site is so far protected within the territory of the central and south Serbia, and it is the "Lalinačka Slatina", categorized as the Nature Monument.

Table 3: *Review of protected saline habitats in R. of Serbia*

Type of NPA	Title	Level of tourism development	Number of visits /god
SRP	"Slano Kopovo"	***	≈ od 2000-8000
PP	"Rusanda"	***	
SRP	"Okanj bara"	*	
PP	"Slatine u dolini Zlatice"	*	
PIO	"Potamišje"	*	
SP	"Lalinačka slatina"	*	
PP	"Jegrička"	**	
SRP	"Selevenjske pustare"	**	
SRP	"Pašnjaci velike droplje"	**	

NPA- Nature Protected Area, *** - high, ** - medium, * - low

Source: *Authors' research based on Luković, 2019 and documents available on web site of Institute for nature conservation and Statistical office of the Republic of Serbia*

In addition to the officially protected areas, there are other saline sites that deserve attention from both the conservational and ecotourism aspects such as Bresničićka and Oblačinska saline sites, situating near the city Prokuplje, together with wide spread sites in the region of cities Sombor, Senta and Kumane. Most of protected saline habitats, in addition to their exceptional natural values, have a partially developed or undeveloped ecotourism infrastructure. The Special Nature Reserve "Slano Kopovo" and Nature Park "Rusanda" are particularly the only two sites with the developed infrastructural access network of roads, information boards and organized tourist activities, which significantly strengthened the tourist offer of Novi Bečej and Melenci municipalities, respectively. As one of the last salt lakes, SNR "Slano Kopovo" is one of the top 10 Special Nature Reserves in the Vojvodina region and a top destination for true nature lovers. In general, the development of tourism in these areas is far below the affirmed touristic destinations, but from the point of view of ecotourism, these sites could be

very significant. Bearing in mind that these sites are of high ecological importance, tourism development must be in harmony with nature, strictly controlled and within the limits of environmental capacities.

Potential ecotourism activities on saline habitats

Saline habitats and their wild life could be an interesting part of global tourist experience as well as the national offer. Nowadays, among the most visited ecotourism destinations are wetlands, especially Ramsar sites, which also include the saline habitats. Based on the natural factors of attractiveness, rarity and authenticity, the saline protected areas may provide sustainable tourism activities, such as educational and excursion tours, or some special types of ecotourism such as plant tourism, bird watching, photo-safari etc.

Table 4: *Potential ecotourism activities which could be performed on Protected saline habitats; examples are given for three largest saline PA in Serbia*

Ecotourism category	SNR "Slano Kopovo"	NP "Rusanda"	SNR "Pasnjaci velike droplje"	Potential facilities
Birdwatching	***	**	***	-Bird hide and wooden trail -Wooden bridge -Watching tower
Herbal tour	***	***	**	-Footpath
Education/ excursion	***	***	**	-Info tables and benches -Educational centers -Entrance signboard
Passive recreation	**	***	**	Footpath
Photo-safari	***	***	**	Watching tower

*** - high, ** - medium, * - low

Source: *Authors' research*

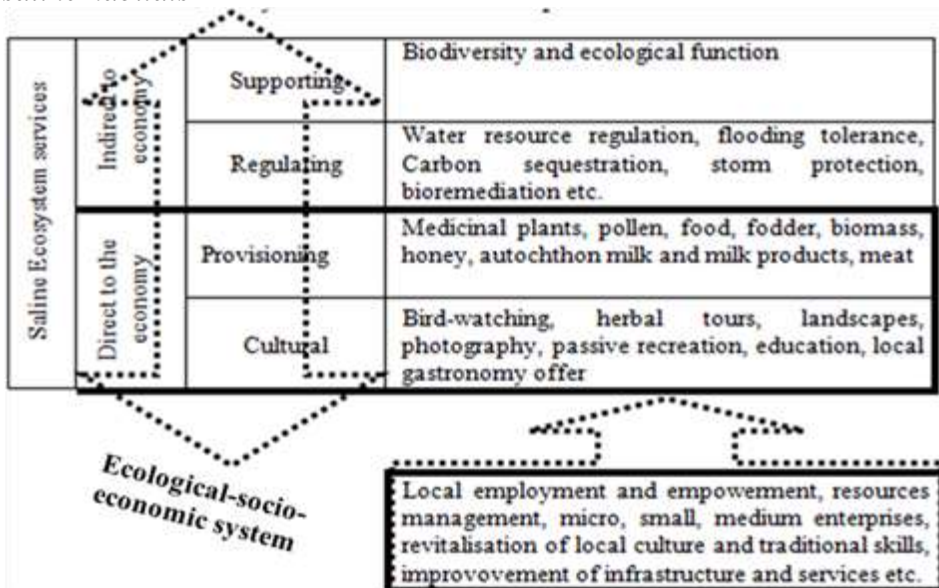
Table 4 shows a list of ecotourism activities on the largest and the most famous protected saline habitats, together with the list of facilities that should be developed+/installed in or around the destinations. To conduct ecotourism activities on the site, it is necessary to construct appropriate facilities, which are missing at the moment, together with implementation of the system for controlling the site visits. All analyzed protected saline sites (Tab. 4) have more or less good potential for birdwatching, herbal tours, education and excursions, passive recreation or photo-safari without or with minor impact on ecosystems. The example of good practice could be the famous ecotourism site, such as The Anzali Wetland in Iran, where tourists enjoy watching birds and scenery from the inside of the bird hide or watching tower with installed boards that explaining biology and ecology of the birds. Footpaths could connect other facilities and in relative short distance, tourist can enjoy short walk. Along the path, signboards could explain the nature, type of habitats and plants. The environmental education centers are used for various kinds of education activities including eco-tours. The signboard at the entrance should explain the key elements of the site (the size, conservation status, allowed and permitted activities, main nature specificities, key endangered species, facilities, etc). The main idea of ecotourism is to lead and inspire tourists to take action in environmental conservation.

An overview of the services of saline ecosystems in the function of local economy diversification

According to the International Ecotourism Society (2015), ecotourism is understood as a sub-category of sustainable tourism restricted to the natural environment to provide conservation awareness, as well as sustainable local development (Mondino & Beery, 2019). The main idea of ecotourism is to support both conservation function and the sustainable development function. Besides natural values of examined areas, number of studies highlighted neglecting of economic aspect (Buckley et al., 2003). Ecosystem services are an important tool for assessing the ecological and economical benefits from sustainable use of particular site. Saline habitats provide specter of ecosystem services that could improve the local economy diversification.

Regarding previous researches (Dajić Stevanović et al., 2016; Dajić Stevanović et al., 2010, Dajić Stevanović et al., 2008), saline ecosystems provide complex of ecological- indirect to the economy services, as well direct socio-economic benefits (Figure 5).

Figure 5: *Ecosystem services and potential economic benefits of using saline habitats*



Source: *Authors' research*

Saline ecosystem services are based on environment (numerous plant and animal species, habitat diversity), and offer, besides supporting and regulating, range of services of cultural importance. Ecotourism, as a part of cultural saline ecosystem services, includes commercial activities such as bird-watching, herbal tours, landscapes, photography, passive recreation, education, and local gastronomy offer. It is important to highlight a new aspect of ecotourism offer in sense of improvement and enrichment of traditional gastronomy with halophytes. In recent time, there have been several studies that analyzed halophytic species (eg. *Salicornia europaea*) as salads or main course (Loconsole et al. 2019). Ecotourism contributes to an ecological-socio-economic system through the economic development and management of resources by generating revenues; provides opportunities for local jobs and employment, and develops a sense of ownership of resources. Its multiplier effect is high due to the strong forward and backward linkages with different economic activities (Eshetu, A. A., 2014).

Conclusion

Saline habitats offer a wide range of extraordinary natural values, from flora, fauna and vegetation to habitats and landscapes. Based on these

potentials, it could be promoted community-based natural resources management and local economy diversification. Ecotourism can be used as a tool for maintaining symbiosis nature of conservation-economy, through the specter of nature-based activities (bird-watching, herbal tours, tour path, gastronomy etc.) in a sustainable manner. Ecotourism is still in its initial stage in these areas, but it holds significant potential for growth.

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