TURIZAM Volume 27, Issue 3 171–185 (2023) ORIGINAL SCIENTIFIC PAPER

Potentials of Tourism Development in the Lower Neretva Region

Josip Šetka^{A*}, Ana Pejdo^B

Received: Jun 2022 | Accepted: September 2023

DOI: 10.5937/turizam27-39314

Abstract

Due to its landscape peculiarities the Lower Neretva region stands out as a unique area on the Croatian coast. The main objective of this paper was to investigate what potential forms of tourism are suitable for development and further investment. It also aimed to show applicability of ArcGIS computer software in the function of tourism development. An online survey was conducted, with the main purpose to examine the opinions and attitudes of the local people about the current state and development potential of tourism in this region. The purpose of this research is to create the vision for future tourism development in the Lower Neretva region, as well as the recommendations that can serve in determining existing and future spatial planning documents.

Keywords: Lower Neretva region; tourism; selective forms of tourism; GIS

Introduction

The Lower Neretva region (Figure 1) is an integral part of the Adriatic tourist region and stands out as a one of the most attractive areas on the eastern Adriatic coast due to the physical-geographical and socio-geographical characteristics of the Neretva river delta. This area is administratively part of Dubrovnik-Neretva County, and consists of three towns (Metković, Ploče and Opuzen) and four municipalities (Kula Norinska, Slivno, Zažablje and Pojezerje). It covers the area of 412.56 km², which is 23.15% of the total area of Dubrovnik-Neretva County. According to the 2021 census, 31,249 inhabitants live in this region, i.e. around 30% of the total County population. According to the physiognomic regionalization of the Republic of Croatia, the Lower Neretva region is the northernmost micro-unit within the South Dalmatian coast. Neretva delta represents one of the most important Croatian agricultural regions (Magaš, 2013; Polić et al., 2016).

Appropriate development of selective forms of tourism and investments in the hinterland, create the possibility of mitigating seasonality and prerequisits for revitalization of rural settlements affected by the depopulation and deagrarization processes (Košak, Lugomer, 2015).

^A SysKit d.o.o., Pavletićeva ul. 1, 10 000 Zagreb, Republic of Croatia

^B Department of Geography, University of Zadar, Republic of Croatia

^{*} Corresponding author: josipset@gmail.com

Based on the research in Dalmatinska Zagora region local population perceived rural tourism as one of the generators of future economic development (Ralica, Blace, 2021). In the recent decade the development of Croatian tourism caused the dispersion of supply and formation of numerous new selective types of tourism (Huška, Luković, 2020). Zaninović (2003) concluded that segmentation and stimulation of selective forms of tourism would create a specialization and necessarily incorporated differentition. When planning tourism activities much greater attention should be given to ecology, the cultural identity of the destination, active vacations, service quality and selective forms of tourism development (Banožić et al., 2015). The main question is how to restructure the mass tourist supply and make it flexible to market trends and demands by developing selective tourism forms (Bošković, 1999).

The aim of the paper was to show the applicability of GIS in tourism, in particular ArcGIS software, using the example of surface analysis as well as the inventory of tourism resources. Nowadays there is significant emphasizes on the use of new technologies, mainly in the form of management and control of tourism activities, as well as in the decision-making process itself. Today, GIS is often used in tourism planning, i.e. in the segment of tourism resource management (Minić, 2010).

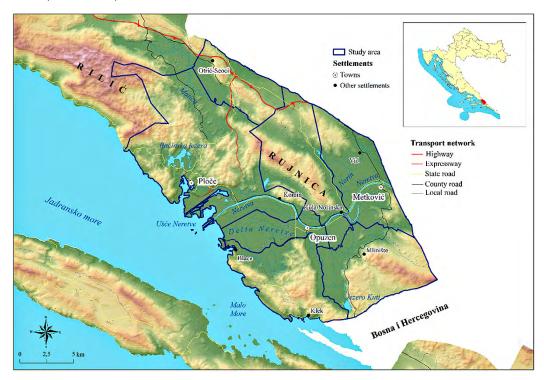


Figure 1. The Lower Neretva region Source: Šetka et al., 2021, SRPJ, DARH, AppEEARS

Research Methods

The methodological basis and main source of the data was an online survey of the local population, in which their opinions and attitudes on the current state of quality of life and economic development, as well as on the state and potentials of tourism development in the Lower Neretva region were examined. The survey was completely anonymous, and the questions were ranked from general to specific. The first group of questions included socio-demographic indicators, such as gender, age, education, employment, etc. The second group of questions included the level of satisfaction with the quality of life and economic development. The last category of questions asked were on tourism, primarily satisfaction with the current situation in tourism (utilization of potentials, local government investment in tourism, etc.) and possible forms of tourism that should be developed further. The survey used a five-point Likert scale, the values of which corresponded to the following expressions: 1 - not at all satisfied, 2 - slightly satisfied, 3 - moderately satisfied, 4 - very satisfied, 5 - extremely satisfied. Furthermore, for questions related to specific activities, i.e. tourist forms, a scale was used with the following expressions: 1 - no, but it would be good for us, 2 - no and there is no need for it, 3 - no, because there are no opportunities, 4 - there are, but it could be better, 5 - there are and it is good. Since the aim of this paper is oriented towards the detection of selective forms of tourism in the Lower Neretva region, the focus will be on the basis of the responses related to forms of tourism, i.e. activities in which further investment should be made. The thematic maps were created using ArcMap, application of ArcGIS 10.5.1. software. Furthermore, vector layers from the Central Register of spatial units (SRPJ) and the Digital Atlas of the Republic of Croatia (DARH), were used to create the maps. The Digital Elevation Model with a spatial resolution of 10m made on the basis of elevation data of the State Geodetic Administration was used to create a slope gradient map and an aspect map of the Lower Neretva region.

The survey results

The survey was conducted completely online. It included 151 residents of the Lower Neretva region and was conducted from 9th to 25th November 2017. Share of female population was 62.3% in relation to 37.7% male. Regarding the age, the survey was completed by 49% of the population between 20 and 25 years old, while 51% of the respondent population was above that age. The youngest respondent was 20 years old, while the oldest was 68 years old. Furthermore, slightly less than two-thirds (64.9%) of the respondent population had higher education (college or university), while 33.1% of the respondents had secondary education. Slightly less than half of the respondents i.e. 43.7% are employed while 15.9% are unemployed. The remaining are retirees and students. Residents of all 7 local administration units of the Lower Neretva region participated in the survey. Slightly more than half of the respondents (54.9%) are from Metković, the largest center in the area, where almost 50% of the total population lives. This is followed by respondents from the towns of Opuzen (11.9%) and Ploče (10.6%). The same percentage of respondents as the town of Ploče is recorded by the municipality of Kula Norinska (10.6%), while from the municipality of Slivno it is 9.3%. The smallest number of respondents comes from the least populated municipalities, Zažablje (2%) and Pojezerje (1.3%).

The second part of the survey, was related to activities and contents, i.e. potential forms of tourism, for which respondents had to choose if they existed or not in theor settlement and at what stage of the development they are (Figure 2 and 3). For nine of the twelve activities, respondents answered that the activity exists but could be better. These include swimming in the sea, walking in nature, cycling, hunting and fishing, bird watching, agri-tourism, sightseeing, cultural events/amenities and manifestations. For the remaining three activities (water sports, wellness/spa amenities, health and recreation amenities), respondents mostly indicated that the mentioned activity does not exist in their area, but it would be good to have

it. The activities that received the highest percentage "yes, but it could be better" responses are cycling (64.9%), hunting and fishing (60.93%), and sightseeing (60.27%). Due to the vertical relief dissection of the Neretva Valley, the respondents appropriately chose cycling and sightseeing as activities to invest in, and owing to the hydrographic characteristics of the Neretva Delta and vegetation, hunting and sport fishing could be activities that will further strengthen the tourist offer of the Lower Neretva region.

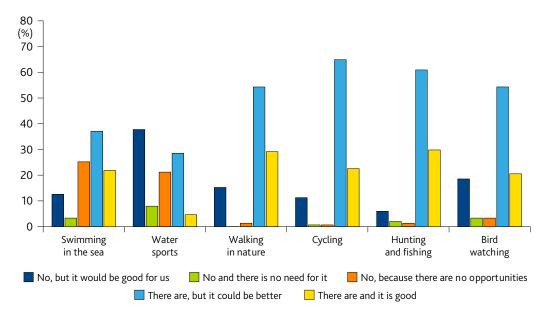


Figure 2. The respondents' opinion on tourist activities Source: based on the results of the survey

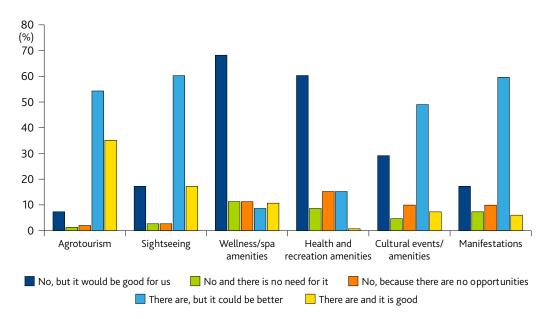


Figure 3. The respondents' opinion on tourist activities and amenities Source: based on the results of the survey

Identification of potential forms of tourism

Looking at recent history, Lower Neretva region was predominantly agricultural, and the existing tourism (accommodation) resources were not utilized optimally. With the exception of the construction of numerous apartments in the coastal area, there have been no major investments in tourism infrastructure and suprastructure in the last 30 years. Ultimately, all this was reflected in the lagging of this microregion in terms of tourism behind the rest of the county, mainly in terms of tourist arrivals and overnight stays (Krešić et al., 2016).

As an indicator of tourism development, the coefficient of tourist functionality (CTF) was calculated (Fig. 4). CTF is a rate indicating the number of tourist beds in commercial accommodation facilities on the number of inhabitants of a city or municipality. The coefficients obtained are divided into six groups according to Defert's Tourist Operative Indicator (TOI): CTF>500 - very significant tourist activity (TOI 6), 100-500 - significant tourist activity (TOI 5), 40-100 - predominant tourist activity (TOI 4), 10-40 - tourist activity is important, but not the main one (TOI 3), 4-10 - tourist activity of minor importance (TOI 2) and <4 - insignificant tourist activity (TOI 1) (Vojnović, 2016).



Figure 4. Coefficient of tourist functionality in Dubrovnik-Neretva County at the city/municipal level in 2015

Source: ArcMap, SRPJ, DARH, Krešić et al., 2016, MICRO projekt d.o.o., 2016, DZS, 2016

The towns of Metković and Ploče and the municipalities of Zažablje, Pojezerje, and Kula Norinska belong to the TOI 1 category, i.e. their CTF is less than four. According to that, the mentioned local administration units are the least developed in the county. The town of Opuzen belongs to the TOI 2 category, while the municipality of Slivno is in the TOI 3 category. At the Dubrovnik-Neretva County level, the municipalities of the Pelješac peninsula

and the islands of Mljet and Lastovo have the highest CTF. The reason for the high CTF is the fact that these areas are sparsely populated, but due to the high tourist demand, the number of beds exceeds the number of permanent residents. The supply is generated mainly by middle-aged adults and seniors, with higher purchasing power and higher cultural capital. Despite the above, three units of local self-government of the Lower Neretva region with access to the sea (City of Ploče, City of Opuzen, and Municipality of Slivno) certainly have a permanent interest in strengthening competitiveness in the field of coastal tourism, based on sun and sea (Krešić et al., 2016). Based on the results of the survey, selective forms of tourism that can significantly contribute to the development of this area are analyzed.

The natural-geographical characteristics of a certain area, as well as the socio-economic resources, determine the direction of tourism development. This type of tourism is called Nature-Based tourism. It mainly depends on the use of natural resources, such as landscape, geological and geomorphological features, hydrography, flora and fauna, and cultural heritage (Deng et al., 2002). According to Vidar Haukeland et al. (2023, p. 12) there are five key trend categories that capture the eight underlying trends in the NBT sector: Health and Sustainability, outdoor recreational traditions (Softadventure), and technological (Digitalization) and organizational (Professionalization) developments of modernity. In the Lower Nertva region all this can be achieved during the forthcoming tourism development.

The resource-attraction base of the Lower Neretva region is very suitable for the development of selective forms of tourism. The demand for these forms of tourism is relatively stable even in times of economic crisis or pandemics such was the case with COVID-19. In many countries, nature-based tourism increased significantly during the COVID-19 pandemic (Sthapit et al., 2022, p. 2).

The concept of agrotourism integrates all the features of the concept of sustainable development, as it includes balanced economic, social and environmental components. Rural tourism implies different tourism activities and types of tourism taking place in rural areas, that is outside urban areas (Demonja, Ružić, 2010, p. 12). It takes place in the rural surroundings where, aside nature, visitors can experience numerous outdoor activities (Vukonić, Čavlek, 2001). Agritourism is the most developed form of rural tourism, which creates a special tourist offer and takes place on a family farms. In addition to accommodation, it includes food, beverages, recreation (participation of tourists in agricultural activities), entertainment and other activities. Due to its specificity, it complements the existing content of a certain area. Croatia in general has all the prerequisites for the development of rural tourism and Dubrovnik-Neretva County, where lower Neretva region is located, had the largest number of registered tourist rural family households (Demonja, 2014).

The end product of agritourism would be the extension of the tourist season, which strengthens the whole economy. Examples from countries such as Austria and Scotland confirm the assumptions that agritourism can revitalize rural areas and mitigate the pronounced seasonality in the summer months. In Scotland, an extension of the tourist season and a reduction in depopulation from rural areas has been observed since the 1980s (Grgić et al., 2015, Košak, Lugomer, 2015). The Lower Neretva region is known for the cultivation of mandarins, whose picking season is in autumn, from September to November. The inclusion of sightseeing and fruit picking on plantations would certainly have a positive impact on tourist traffic in the low season. In general, this is an area with significant agricultural production, fragmented farms predominate, the area is traditionally oriented towards agriculture and a large part of the population is looking for additional sources of income. The basic conditions for further development of agrotourism in the Lower Neretva region are investments in the development of products that would meet all the requirements of modern tourist demand, i.e. well-designed and organized promotion is necessary. In addition to marketing activities, the success factors of this form of tourism are the development of specialized services related to fruit, olive and wine growing, such as introducing tourists to the host's lifestyle, involving tourists in agricultural activities, especially harvesting, and learning about local culinary traditions (Krešić et al. 2016).

Ecotourism as a selective form of tourism has emerged as a powerful alternative to forms of mass tourism. It is often associated with the proteced parts of nature. It is sustainable, takes into account ethical aspects, raises awareness of the need to conserve natural resources, is carried out in small groups with due regard for the carrying capacity of the local area and brings economic benefits to the local community (Handriana, Ambara, 2016, Miljak et al., 2012).

This area is characterized by exceptional biodiversity as well as extreme ecological sensitivity. That refers mainly to the part of the Neretva Delta where four ornithological reserves have been established - Prud, Orepak, Podgrede and Neretva delta. In addition to visiting protected areas, tourists can consume products from organic farming, learn about the traditional way of life and local customs of the local people. Factors for the development of this form of tourism are the beauty of the Neretva landscape, the preserved natural habitat, the relatively small number of visitors and the possibility of photo safaris. In addition, it is necessary to train a number of professional guides and work on promoting ecotourism through professional journals and the Internet (Krešić et al., 2016).

Birdwatching as an activity with a history of over 200 years involves observing and studying birds with the naked eye or optical aids such as binoculars, a telescope, or professional cameras with powerful lenses. It is particularly popular in western countries. Birdwatchers are predominantly highly educated, middle-aged or elderly people with above-average incomes who have a strong awareness of nature conservation and environmental protection. The main motives for tourists' arrival are reduced to recreation and learning about bird species that are not so common or do not exist in the countries they come from (Krešić et al., 2016, Ma et al., 2012, Udruga za biološka istraživanja – BIOM, 2010).

Birdwatching takes place mainly in the spring months, i.e. May and June, as this is the breeding season for most birds. Tourists may also come in the autumn, during the autumn migration. In order for visitors to observe birds unhindered and for long periods of time, it is necessary to invest in infrastructural elements such as observatories (Udruga za biološka istraživanja – BIOM, 2010). In the Lower Neretva region, there are two observatories, one located at the Neretva delta, the other within the Podgrede Ornithological Reserve (Martinović, 2017).

Cyclotourism is a branch of sports tourism that has become very popular in recent years. It is an activity in which the tourist travels outside his place of residence in order to enjoy cycling and, at the same time, to have the opportunity to get to know the destination in which he is staying. Some of the main motives of cyclists are recreation, spending time in nature, healthy lifestyle, striving for new challenges and mental relaxation (Mrnjavac et al., 2014, Mrnjavac, Slavić, 2018).

The Lower Neretva region is an ideal area for the development of cycling tourism in terms of its physical-geographical characteristics; the flattened part along the coast and the Neretva delta, and the less steep slopes in the hinterland. Some of the measures that should be taken to improve the cyclotourism offer are focusing on the development of shorter and less strenuous cycling routes for recreational cyclists, thematizing routes, providing several routes without motor vehicles, adding facilities to the existing routes such as viewpoints, rest areas, information boards and working more actively to promote cyclotourism online, through brochures and professional magazines (Budija, 2016, Krešić et al., 2016).

Hunting and fishing tourism are by their nature controversial activities. They are usually supported by the local population when they contribute to the development of the local community, while on the other hand they are often condemned by environmental associations. Thanks to the landscape characteristics, the Lower Neretva region has a long tradition of hunting and fishing. About 10,000 foreign hunters come to Croatia every year, with Italians and Austrians dominating. Depending on the wildlife species, the hunting season can last throughout the year, and hunters prefer to stay in rural households and hunting lodges (Camara, Munteanu, 2016, Krešić et al., 2016).

One of the biggest problems in these activities is illegal hunting and fishing. In the context of the Lower Neretva region, hunting should be maximally controlled and monitored by the relevant institutions. Hunting and nature protection sectors must cooperate more intensively and make efforts to combat all types of poaching. Bird hunting must be carried out in precisely prescribed zones and only during the hunting season specified in the hunting law (Camara, Munteanu, 2016, Zaštita prirode Dubrovačko-neretvanske županije, 2017). Due to similar problems in this area, frogs and eel fish are also endangered.

The Lower Neretva region has an extremely high potential in the development of fishing tourism, mainly thanks to the rich ichthyological marine and freshwater fund. What is missing is adequate fishing infrastructure, specific fishing signals and accompanying services such as boat and equipment rental. In general, targeted online promotion and promotion through specialized hunting and fishing magazines would contribute to the development of this selective form of tourism in this area (Krešić et al., 2016).

Although the terms walking, trekking, and hiking are initially quite similar, there are some subtle differences. For example, trekking is a relatively new term and refers to the adventurous part of walking. Trekking trails are usually divided by difficulty, depending on the terrain, and it also takes place on unmarked trails in nature. Hiking is more associated with longer distances, while walking is used for shorter distances. Due to the increasingly fast-paced life, more and more people are paying attention to their health, so it is expected that the number of tourists in this segment of tourism will grow steadily and continuously (Krešić et al., 2016, Lee et al., 2017, Ralica, Blaće, 2021).

At the level of Croatia, there are no indicators about the size and characteristics of this market segment, partly it can be determined from the records of visitors to national parks and nature parks. They are mainly highly educated middle-aged people who are environmentally aware. Although this is the so-called low yield market segment, an increased focus on these activities in the Lower Neretva region would be fully justified, especially in the initial phase of tourism development, when the beauties of this region have not yet been revealed to the general public (Krešić et al., 2016, Kunst, 2013).

The constant evolution of the concept of culture, as well as its ambiguity, has led to the existence of numerous definitions of cultural tourism today. Cultural tourism can be defined as travel away from one's permanent residence to appreciate some form of artistic, social or intellectual activity, including visits to indigenous communities, historic and religious sites, as well as visits to performing arts, festivals and special events and gastronomic centres (Barbieri, Mahoney, 2010, Kesar, 2017).

This form of tourism can be developed for political or economic reasons that are not related to the local population and the preservation of cultural heritage. This results in negative consequences for historic towns and their inhabitants. However, this selective form of tourism

can be a potential solution for extending the tourist season and mitigating seasonal concentrations (Pančić Kombol, 2006).

In the Lower Neretva region, the cultural offer is not sufficiently implemented in the tourist offer. The Narona Museum in Vid is the most visited facility, and of the events, Neretva Boat Marathon stands out. Many contents of tangible and intangible cultural heritage are not valorized for tourism. This refers mainly to numerous manifestations, but also to tangible heritage, such as fortifications. In order to improve this segment of tourism, it is necessary to design and then organize a series of new, different consumer categories of attractive events related to the customs of the local population, historical events and traditions of life and work of this area (Krešić et al., 2016).

The application of Geographic Information Systems (GIS) in tourism

Today there are numerous definitions of GIS. It is a software platform used to store, manage, manipulate, analyze, and visualize spatial data. The value of this system comes from sophisticated data tables that display attribute data with a spatial component. The data in GIS are in the form of data layers, and their overlap can reveal spatial patterns and trends (Marić, 2015).

Relief is one of the key factors in tourism development. Within ArcGIS, there is a 3D Analyst extension that consists of tools to manage, edit and analyse a digital elevation model (DEM) (Valožić, 2015). With the help of the mentioned extension, i.e. the Slope tool, the slopes of the Lower Neretva region were determined (Fig. 5). Determination of slope is one of the most important elements of relief analysis. The results of the analysis can be used to determine the intensity of denudation, i.e. accumulation, and are an indicator of the stability of the terrain. The correlation of the slope gradient map with morphometric maps (hypsometry, aspect), as well as other maps (geological, soil) is of great practical importance, especially in the selection of the most favorable sites and their optimal use. When it comes to tourism, the slope gradient map should be considered in the context of construction efficiency. Namely, slopes with an angle of inclination of o - 2° are very favorable for construction, slopes with an inclination of 2 - 5° are suitable for construction, the slope category of 5 - 12° is favorable for construction, but with proper landscaping, slopes of 12 - 32 ° are unfavorable slopes and they are useful for construction only with significant intervention, and lastly slopes with a greater slope of 32 ° are slopes unfavorable for the construction of new infrastructure (Lozić, 1996).

According to the slope gradient map, the entire area of the alluvial plain of the Lower Neretva region, including the contact areas between the valley and the hilly areas, is favorable for the construction of tourist infrastructure. Of course, the pedological nature and a number of other features should be taken into account, as large infrastructure investments will certainly not take place in the wetlands of the Neretva Delta. In the area of the Rujnica and Podgradinsko-Slivanjska hills, areas unfavorable for construction prevail, but are attractive due to the heights and slopes, which can be used for the development of certain selective forms of tourism such as cycling, trekking or hiking.

Besides slope, aspect (Figure 6) is the most commonly used variable in morphometric analyses. Aspect is calculated based on the existing DEM according to the azimuth range of cardinal and intercardinal directions, starting from north clockwise (Sabolović et al., 2016). In tourism aimed at certain selective forms, such as wine tourism or agrotourism, this type of data is of great importance. Vineyards and orchards are best planted on hilly terrain with a southern, south-eastern or south-western exposure. They ensure the best sunlight for the plantings and

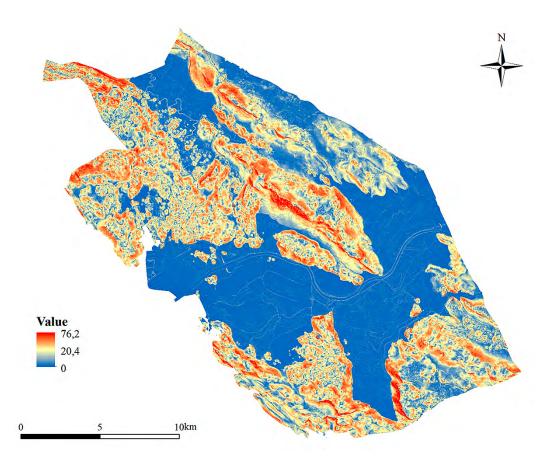


Figure 5. Slope gradient map of the Lower Neretva region (ArcMap, SRPJ)

thus more sugar in the fruit. Somewhat less suitable for growing new plantations are the western and eastern and least suitable are the northern, north-eastern and north-western aspects. At the northern exposures, cultivation of varieties that are more resistant to low temperatures and have a shorter growing season is suitable (Jug, 2013).

The Rizman, Volarević and Terra Madre wineries grow vines on the south, southwest and southeast exposed hills of the Slivno municipality, near the village of Komarna. From the analysis, it appears that the area around the Baćina lakes is suitable for growing crops, and in Peračko Blato, not far from the lakes, there is one of the most important family farms in the Lower Neretva region - Family Farm Ostojić, known for growing figs. Family farms can be considered as one of the major pillars of rural tourism (Svržnjak et al., 2014). In addition, the western slopes of Rujnica are also exposed to the south, and in the settlement of Desne, located in the contact area between the alluvial plain and Rujnica, there are numerous olive groves and vineyards.

In planning and tourism marketing, on the other hand, GIS has been common for several decades. GIS is nowadays mainly used for the management of tourism resources. The development of tools that support the tourism decision-making process and allow potential visitors to get an overview of the variety of tourism resources, products and services are the main objectives of the application of GIS in tourism marketing (Albuquerque et al., 2018, Minić,

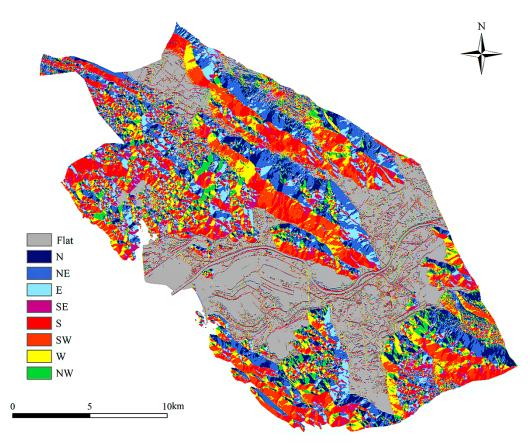


Figure 6. Aspect Map of the Lower Neretva region (*ArcMap, SRPJ*)

2010, Šiljeg et al., 2010). In practice, the most common are: digital maps that serve as the basis for printed maps, digital files for internet and mobile mapping, attractions map, website with interactive mapping (Jovanović, Njeguš, 2008). Destination promotion through geo-marketing is based on data collected through market research and statistical data. In order for the promotion of a tourist destination to be successful, it is necessary to create a network portal with a city map, a city transport map, tourist attractions and other interesting places, such as restaurants, cafes, etc. (Minić, 2010).

Spatial analysis in GIS can be a significant help for all units of local self-government of the Lower Neretva region in the context of tourism development. For example, by using a simple spatial analysis of the distribution of tourists, it is possible to determine in which areas more investments would be necessary. A significant step forward would certainly be the development of a web and mobile application with all tourism resources in the region, including, for instance, public facilities, restaurants, hotels, cafes, cultural content, etc., which would need to be updated from time to time, depending on changes.

Conclusion

Considering the richness and diversity of the natural and cultural heritage and the current trends in tourism, mainly the increasing interest for selective forms of tourism, Lower Neretva region has a unique potential. It is to be expected that with the development of the analyzed selective forms of tourism, the tourist season will be extended. As most tourist activity is concentrated in July and August, developing forms of special interest tourism would prolonge tourist season. For example, further investment in the development of agrotourism and bringing tourists to mandarin orchards, whose picking season is from September to November, would reduce the pronounced seasonality during the summer months. In addition, birdwatching is specific for the spring months (May and June), as it is the nesting season for most birds, and tourists can come both in autumn during migration, but also in the winter months.

It is necessary to emphasize the richness of the historical and cultural heritage and a large number of events outside the main tourist season, the promotion of which should be worked on systematically to achieve the vision of tourism development. The advantages of using geoinformation technologies, as well as other modern technologies, should certainly be used in the overall promotion of this area. In order to implement concrete and radical changes in this regard, strong cooperation and involvement of all local stakeholders such as tourism associations, small and medium enterprises, local community and municipality authorities is needed.

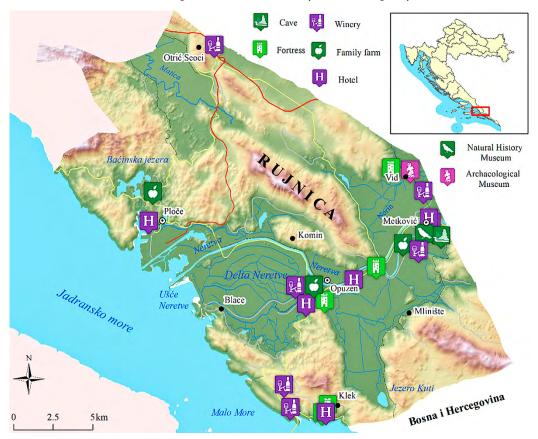


Figure 7. Tourism infrastructure in the Lower Neretva region (ArcMap, SRPJ)

Based on the he researches it is evident majority of tourist infrastructure and points of tourist's interest is located along the Neretva river and along the coast (Figure 7) so special attention should be given to the redistribution of tourist flows as well as balanced tourism development in the entire region. Taking into account the natural and cultural diversity of Lower Neretva region, a rich resource base of tourist attractions, preserved environment and rural households, region has all prerequisites for the development of all special forms of tourism in the rural areas.

References

- Albuquerque, H., Costa, C., Martins, F. 2018. The use of Geographical Information Systems for Tourism Marketing purposes in Aveiro region (Portugal). Tourism Management Perspectives 26, 172-178.
- AppEEARS Application for Extracting and Exploring Analysis Ready Samples, U.S. Geological Survey, (https://lpdaacsvc.cr.usgs.gov/appeears/). 01.07.2023.
- Banožić, M., Žalac, G., Sumpor, M. 2015. Mapping of tourism potential: the preconditions for the development of tourism in Continental Croatia. Ekonomski vjesnik: Review of Contemporary Entrepreneurship, Business, and Economic Issues 28/1, 69-83.
- Barbieri, C., Mahoney, E. 2010. Cultural Tourism Behaviour and Preferences among the Live-performing Arts Audience: An Application of the Univorous-Omnivorous Framework. *International Journal of Tourism Research* 12(5), 481-496.
- Bošković, D. 1999. Tržišne mogućnosti razvoja agroturizma u Istri. Tourism and hospitality management 5/1-2, 23-38.
- Budija, I. 2016. Prirodna osnova otoka Ugljana u funkciji razvoja turizma (master thesis). Department of Geography, University of Zadar, Croatia.
- Camara, G., Munteanu, M. 2016. Exploitation of Hunting and Fishing Tourism in Galați County, Romania. Present Environment and Sustainable Development 10(2), 195-206.
- Demonja, D. 2014. The Overview and Analysis of the State of Rural Tourism in Croatia. Sociologija i prostor 52(1), 69-90.
- Demonja, D., Ružić, P. 2010. Ruralni turizam u Hrvatskoj s hrvatskim primjerima dobre prakse i europskim iskustvima Zagreb, Samobor, Meridijani, 316
- Deng, J., King, B., Bauer, T. 2002. Evaluating natural attractions for tourism. Annals of Tourism Research 29(2), 422-438.
- Digitalni atlas Republike Hrvatske (DARH), State Geodetic Administration, Zagreb
- DZS, Turizam u primorskim gradovima i općinama u 2015., Statistička izvješća, Zagreb, 2016, (https://www.dzs.hr/Hrv Eng/publication/2016/SI-1565.pdf), 01.07.2023.
- Grgić, I., Zrakić, M., Gudelj-Velaga, A. 2015. Agroturizam u Republici Hrvatskoj i nekim državama Europske unije. Agronomski glasnik 77(1-2), 61-74.
- Handriana, T., Ambara, R. 2016. Responsible Environmental Behavior Intention of Travelers on Ecotourism Sites. *Tourism and hospitality management* 22(2), 135-150.
- Huška, D., Luković, T. 2020. Application of AHP model for evaluating existing forms of selective tourism in Croatia, DIEM: Dubrovnik International Economic Meeting 5/1, 151-160.
- Jovanović, V., Njeguš, A. 2008. The Application of GIS and its component in Tourism. Yugoslav Journal of Operations Research 18(2), 261-272.

- Jug, I. 2013. Izbor i uređenje terena pred zasnivanje trajnih nasada (lecture materials). Josip Juraj Strossmayer University of Osijek, Faculty of Agriculture, Department for chemistry, biology and physics of soil, Osijek.
- Kesar, O. 2017. Kulturni turizam (lecture materials). Faculty of Economics and Business, University of Zagreb, Department of Tourism, Zagreb.
- Košak, M., Lugomer, K. 2015. Agroturizam u funkciji produljenja turističke sezone Primorske Hrvatske. *Hrvatski geografski glasnik* 77(2), 141-168.
- Krešić, D., Kunst, I., Telišman Košuta N. 2016. Plan razvoja turizma klastera Neretva, 2015. 2025., Institute for tourism, Zagreb.
- Kunst, I. 2013. Akcijski plan razvoja turizma na području Grada Čazme, Institute for tourism, Zagreb.
- Lee, S. A., Manthiou, A., Chiang, L., Tang, L. R. 2017. An assessment of value dimensions in hiking tourism: Pathways toward quality of life. International Journal of Tourism *Research* 20(2), 236-246.
- Lozić, S. 1996. Nagibi padina kopnenog dijela Republike Hrvatske. Acta Geographica Croati*ca* 31(1), 41-50.
- Ma, Z., Cheng, Y., Wang, J., Fu, X. 2013. The rapid development of birdwatching in mainland China: a new force for bird study and conservation. Bird Conservation International 23,
- Magaš, D. 2013. Geografija Hrvatske, Department of Geography, University of Zadar, Meridijani, Samobor, Zadar.
- Marić, I. 2015. Primjena GIS-a u analizi tržišta za potrebe trgovačkih centara (master thesis). Department of Geography, University of Zadar.
- Martinović, M. 2017. Otvorene promatračnice za ptice na delti rijeke Neretve, (http://www. ptice.net/otvorene-promatracnice-za-ptice-u-delti-rijeke-neretve/), (01.07.2023)
- MICRO projekt d.o.o. 2016. Strateški razvojni program Grada Opuzena za razdoblje od 2015. do 2020., Split.
- Miljak, T., Bačić, L., Kitić, M. 2012. Ekoturizam kao poticaj razvoja poduzetništva u turizmu na primjeru Republike Hrvatske. *Učenje za poduzetništvo* 2(2), 323-331.
- Minić, N. 2010. Geografski informacioni sistemi u oblasti turizma i njihova primena u marketingu turističke destinacije. *Singidunum revija* 7(2), 363-370.
- Mrnjavac, E., Kovačić, N., Topolšek, D. 2014. The Logistic Product of Bicycle Destinations. Tourism and Hospitality Management 20/2, 171-184.
- Mrnjavac, E., Slavić, N. 2018. Mobility of citizens of Croatia: experiences and attitutdes, with special reference to tourism. Acta Turistica 30/2, 129-154.
- Pančić Kombol, T. 2006. Kulturno naslijeđe i turizam. Radovi Zavoda za znanstveni rad Varaždin 16-17, 211-226.
- Polić, M., Bule-Radaljac T., Mihaljević, I., Zekaj, M. 2016. Lokalna razvojna strategija Lokalne akcijske grupe Neretva, Institute for Development and International Relations, Zagreb.
- Ralica, N., Blaće, A. 2021. Contribution to the Study of the Development and Significance of Rural Tourism in Šestanovac Municipality, Sociologija i prostor: časopis za istraživanje prostornoga i sociokulturnog razvoja 59/1(220), 43-65
- Sabolović, M., Šiljeg, A., Zdilar, S. 2015. Značajke digitalnih modela reljefa u vojnogeografskim analizama na primjeru vojno-redarstvene operacije Maslenica. Polemos: časopis za interdisciplinarna istraživanja rata i mira 18(36), 29-54.

- Šetka, J., Radeljak Kaufmann, P., Valožić, L. (2021). Promjene zemljišnog pokrova i načina korištenja zemljišta u Donjoneretvanskom kraju od 1990. do 2020. godine. Hrvatski geografski glasnik 83(2), 7-31.
- Šiljeg, A., Šiljeg, S., Šiljković, Ž. 2010. Conditions and development tendencies of touristic offer in Kupres municipality (Bosnia and Herzegovina). Geoadria 15(2), 305-325.
- Središnji registar prostornih jedinica (SRPJ), State Geodetic Administration, Zagreb
- Sthapit, E., Björk, P., N. Coudounaris, D. 2022. Memorable nature based tourism experience, place attachment and tourists' environmentally responsible behaviour. Journal of Ecotourism, 1-25.
- Svržnjak, K., Kantar, S., Jerčinović, S., Gajdić, D. 2014. Mogućnosti razvoja ekoturizma u Koprivničko-križevačkoj županiji. Križevci: Visoko gospodarsko učilište u Križevcima, Hungary-Croatia IPA Cross-border Co-operation Programme, ECOTOP.
- Udruga za biološka istraživanja BIOM. 2010. Promatranje ptica u Hrvatskoj, Priručnik za razvijanje turizma promatranja ptica u Hrvatskoj, Udruga za biološka istraživanja -BIOM, Zagreb.
- Valožić, L. 2015. Digitalni model reljefa (lecture materials). University of Zagreb, Faculty of Science, Department of Geography.
- Vidar Haukeland, J., Fredman, P., Tyrväinen, L., Siegrist, D., Lindberg, K. 2023. Prospects for nature-based tourism: identifying trends with commercial potential, Journal of Ecotourism,1-19.
- Vojnović, N. 2016. Utjecaj turistifikacije na fizionomijska obilježja krajobraza unutrašnje Istre. Ekonomska i ekohistorija: časopis za gospodarsku povijest i povijest okoliša 12(1), 44-57.
- Vukonić, B., Čavlek, N. 2001. Rječnik turizma. Zagreb, Masmedia.
- Zaninović, V. 2003. Segmentacija i poticanje selektivnih oblika hvarskog turizam spoj izvornoga i modernoga. Tourism and hospitality management 9/2, 271-288.
- Zaštita prirode Dubrovačko-neretvanske županije 2017. *Borba protiv krivolova na ptice u delti* rijeke Neretve, (http://zastita-prirode-dnz.hr/borba-protiv-krivolova-na-ptice-u-delti-rijeke-neretve/) (01.07.2023)