

EVALUATION OF RECREATIONAL TERRITORIES A CASE STUDY OF BIRŽAI TOWN OF THE REPUBLIC OF LITHUANIA

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Abstract

The need for recreational territories in urban areas has recently become increasingly relevant. In order to create and develop an effective urban green space system, it is necessary to study its main structural components. The aim of the research is to perform the analysis and evaluation of recreational territories of Biržai town. During the research, the territory of Biržai town, green spaces were analyzed, the main cadastral data of recreational territories as real estate objects were determined: areas, land use purposes, land use types, special land use conditions and easements. The influence of cadastral indicators in adapting objects to recreation and tourism has been determined. Possibilities of recreational activities in Biržai town were evaluated. Following the SWOT, a generalized analysis of the situation was provided. The performed research revealed that the town of Biržai is dominated by built-up and water-occupied territories. The areas of the territories intended for recreation do not correspond to the areas provided for in the Master plan of Biržai town. The green space system is uneven, the recreational territories do not ensure a full life for the townspeople. The town lacks green spaces adapted to various activities, and the integration of water bodies into the urban living environment is moderate. It is proposed to activate communities in the development of living environment in Biržai.

Key words: recreation territories, green spaces, protected territories, Biržai town.

Introduction

In order to achieve sustainable urban development, sufficient attention must be paid to the proper planning of the urban recreational system, public spaces as well as green areas. The current general and detailed planning does not solve the problems that arise.

Extensive scientific literature (Aronson et al., 2017; Dagytė-Mituzienė, 2015; Deveikienė, 2016; Katkevičius et al., 2012; Jakovlevas-Mateckis, 2008; Juškaitė, Gurskienė, 2015; Katkevičius et al., 2012; Lai et al., 2019; Landry, 2005; Prapiestienė, 2003; Russo, Cirella, 2018; Stauskis ir Skripkiūnas, 2015; Veitch et al., 2020; Wen et al., 2020 and other) emphasizes the importance of green spaces for the preservation of the natural environment, biodiversity in urban areas and most importantly – people. Cities play important roles in the conservation of global biodiversity, particularly through the planning and management of urban green spaces (Aronson et al., 2017). According to K. Jakovlevas-Mateckis (2008), green spaces with buildings form the structure of urban space, which is the open green space of the town (recreational zones, squares, parks). In order to create good conditions for the population to work, study and relax, an urban green space system is being built in the cities and towns, in particular by using existing natural resources. Optimal area ratios must be maintained, such as covered and green areas for the rest and health of the population. As Wen et al. (2020), urban planners should choose effective planning tools based on a good understanding of the local context and appropriate target groups.

In addition, according to Ch. Landry (2005), in the development of cities and towns, the historical heritage of the past must be taken into account in order to ensure that the needs of the inhabitants of the city or town are not “drained and exhausted.”. According to R. Prapiestienė (2003), in order to achieve good results in the field of urban afforestation, it is necessary for all responsible institutions to be united, purposeful, and planned. No less important is the involvement of local communities (Juškaitė, Gurskienė, 2015), especially when considering planning documents.

In order to create and develop an effective urban green space system, it is necessary to study its main structural components: the natural and anthropogenic environment. In order to achieve sustainable urban regeneration, it is worth paying due attention to identifying the recreational potential of the town, finding opportunities to develop the recreation system, ensuring its smooth functioning both in the internal structure of the town and in the regional context.

The object of this study was the town of Biržai in northern Lithuania. According to G. Gaudiešiūtė (2009), today the town of Biržai loses clear structural boundaries, it is not clear where the old town and where its boundary is. Biržai town center is gradually losing its historical originality and integrity.

The aim of the study was to determine the distribution of recreational territories and heritage objects in Biržai town and suburbs, to analyze the separate green spaces of Biržai town, to evaluate the quantitative and qualitative characteristics of recreation and recreation territories and their significance for both locals and incoming tourists. Similar problems are relevant in other urban areas as well. The aim of this research is to perform the analysis and evaluation of recreational territories of Biržai town.

Methodology of research and materials

The object of the research is the recreational territories of Biržai town.

Biržai is a town in northern Lithuania, Aukštaitija, Panevėžys county, 66 km north of Panevėžys, located 201 km north of Vilnius and 90 km south of Riga, near the Latvian border (Fig. 1).

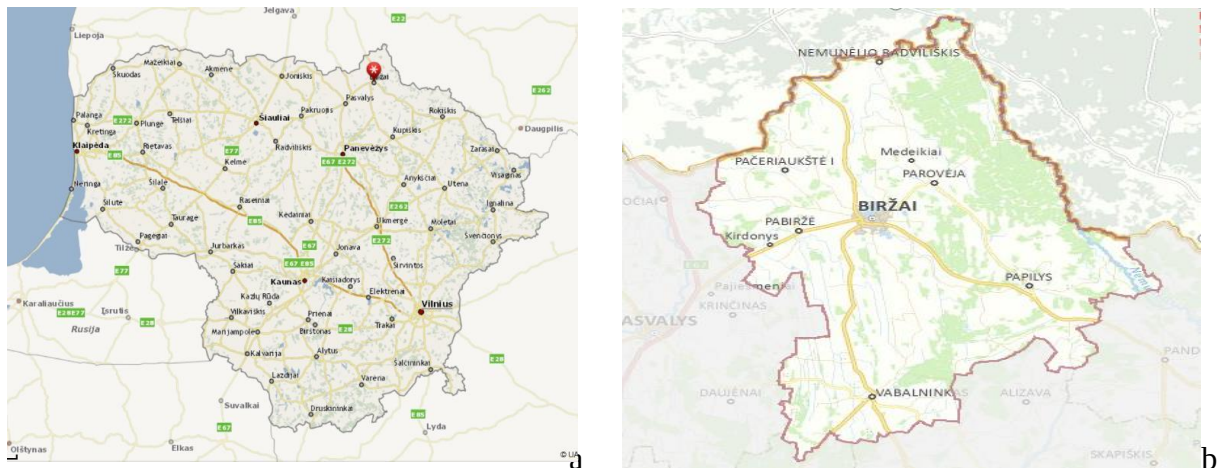


Fig. 1. Geographical position of the town in relation to the country (a) and in relation to the district (b) (compiled according to www.geoportal.lt)

The town of Biržai selected for the analysis has great potential for the development of tourism and recreation. Attractive recreational territories that meet the needs and significant natural and cultural heritage objects should be considered as the most important factors in the development of these activities.

The analysis of scientific and legal literature, statistical data, spatial planning documents and other sources was performed during the research. Statistical data provided by the National Land Service under the Ministry of Agriculture, the Department of Statistics of Lithuania, the State Enterprise the Center of Registers and other institutions, information of the Geographic Information System (GIS), which is provided on the website www.geoportal.lt, was collected and analyzed. Information was collected from the following spatial datasets: Georeferenced Base Cadastre (GRPK), Abandoned Lands (AŽ_DRLT), Protected Territories, etc.

Two questionnaires were conducted. The questionnaires were posted on the portal www.apklausa.lt and filled in in March-April 2020. According to the first questionnaire (it consisted of 25 questions), the aim was to find out the opinion of the residents of Biržai about the adaptation of recreational territories of Biržai for recreation, their attendance and satisfaction of the needs of the residents. The questionnaire was read by 292 citizens and only 55 respondents took part in the survey. The reliability of this sample is 86%. The second questionnaire (consisting of 18 questions) was addressed to professionals in the field, i. experts to clarify their position. Links to this survey were sent by e-mail to the municipal administration, Biržai Regional Park Directorate, Environmental Protection Agency, Biržai Territorial Division of the National Land Service under the Ministry of Agriculture. It was attended by 10 experts. A SWOT analysis was performed to summarize the situation.

The results of the study are presented using descriptive and graphical representation methods.

Discussions and results

The following analyzes were performed for the evaluation of the town's recreational territories: Biržai town recreational territories, land fund distribution and natural framework, urban, protected territories

and public spaces, green spaces system and the level of satisfaction of their recreational needs in the town.

In order to perform the analysis of recreational territories of Biržai town, it was first determined how the land use in this town was distributed (Table 1).

Table 1

Distribution types of land use in the territory of Biržai town (compiled according to Lietuvos Respublikos žemės..., 2016, 2019)

Type of land use	Area ha		Area change 2016-2019, ha	Area of total town area %	
	2016	2019		2016	2019
Agricultural land	294.51	256.82	-37.69	16.5	16.5
Forests	117.22	64.88	-52.34	6.6	4.2
Roads	90.67	82.11	-8.56	5.1	5.2
Built-up area	670.62	573.53	-97.09	37.6	36.9
Water bodies	459.89	453.15	-6.74	25.8	29.2
Other land	149.56	124.64	-24.92	8.4	8.0
Total in Biržai town	1782.41	1555.13	-227.28	100	100

During this period, not only the land use structure changed, but also the area of the town territory as well, as the boundary of the Biržai town territory was adjusted. It can be seen that built-up and water-filled areas predominate, which in 2019 occupied 66 percent of the town area.

The town is not characterized by the abundance of green spaces and their quality. An important compositional axis of Biržai town – two rivers, Širvėna and Kilučiai lakes, the main green areas of the town are located around them and a natural framework is formed. These important natural elements complement the urban structure of Biržai.

The distribution of recreational territories and cultural heritage objects in the town and suburban cadastral units as well as in separate protected territories was analyzed (Table 2).

Table 2

Distribution of recreational territories and objects in the territory of Biržai district (compiled according to ŽIS paslaugos, 2020)

Localities	Total area, ha	Recreational territories				Area of cultural heritage objects				Number of point cultural heritage objects
		number	area, ha	%	average area, ha	number	area, ha	%	average area, ha	
Total in 8 cadastral units	33437.11	24	63.16	1.30	14.69	71	709.19	2.12	23.37	26
Average in 1 cadastral unit	4179.64	3	7.90	0.16	1.84	8.88	88.65	2.12	2.92	3.25
In Biržai regional park	14405.76	17	52.27	0.36	3.07	42	662.09	4.60	15.76	25
Total in 8 reserves	4106.42	5	16.74	3.70	7.15	25	452.72	11.02	47.80	16
Average in 1 reserve	821.28	1	3.35	0.74	1.43	5	90.54	11.02	9.56	3.20

Explanation: * - from the total area of the cadastral unit or protected territory

It has been established that the objects intended for recreation are both in the town and in the suburban cadastral units. Therefore, these territories are included in the area of direct influence of the town of Biržai and are analysed with the town. On average, there are about 9 cultural heritage objects in one cadastral unit, which cover an area of almost 90 ha. As many as 42 cultural heritage objects belong to one cadastral unit of Biržai town, which makes up 42.43% of the total area of the cadastral unit. All these objects also fall within the boundaries of Biržai Regional Park. 25 cultural heritage sites have been identified in the reserves, which should be preserved as well.

Therefore, in order to adapt the cultural heritage to cognitive tourism, it is necessary to prepare special plans for the territories of protected objects, specifying their boundaries and valuable features, providing for protection measures and their implementation. The historical places, mound, manors and other objects of Biržai Old Town should be better adapted to cultural-cognitive tourism and events.

Urban analysis. The most significant accent of Biržai town is considered to be the castle site with Radvilų Castle. This object requires a visual dominance zone of about 2.7 km. Biržai is a small town. Almost the entire territory of Biržai town falls into the zone of visual dominance of the castle. This means that no high-rise construction can be carried out in this area that could negatively affect the visual perception of the town. In addition, a radius of 1.1 km provides the most protected territory in the core of the town. It includes the old town, urban and archeological monuments, the territory of the regional park with the boundaries of the urban reserve. This is the most sensitive area of the town, where the height is limited (predominantly 3-4 floors, in case of visual shadows – possible height up to 5-6 floors) (Fig. 2).

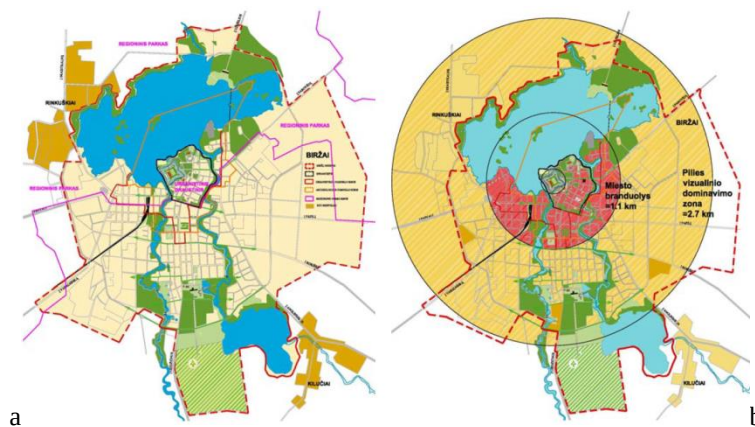


Fig. 2. Administrative formations of the town and accesses (a), Visual dominance zones of the castle in the town (b) (compiled according to Gaudiešiūtė ..., 2009)

It should be mentioned that the town of Biržai is rich in deformations of the urban structure. According to G. Gaudiešiūtė (2009), usurpation of the most attractive places for buildings in the historical core of the town causes deformations in the functional sector, creating visual pollution. The compositional as well as urban and landscape principles of the architectural structure are ignored.

Protected territories. The system of protected territories is important in adapting territories to recreation. The examined Biržai town and suburban territories include the following protected territories: natural framework territories, complex protected territory – *Biržai Regional Park*, as well as *nature reserves, cultural heritage values and other territories*.

In the solutions of the Master Plan (2014) of Biržai, when forming a high-quality urban structure and architectural solutions, it is planned to preserve the elements of the natural framework. It is emphasized that it is necessary to identify all applicable strategic development methods for the urbanized areas of Biržai.

One of the most significant natural-cognitive aspects is Biržai Regional Park. This park has a relatively high concentration of natural objects to visit. Biržai Regional Park was established in order to preserve the landscape of the Lithuanian karst region, its natural ecosystem and cultural heritage values, to manage and use them rationally. This park includes Biržai and Pasvalys districts, its management is located in Biržai. The total area of this park is 14,406 ha. In the town of Biržai it occupies 830.27 ha, i.e. 40.3% of the area of this town. The activities carried out by the Park Directorate and other environmental institutions significantly contribute to the preservation of the most valuable places and objects, their adaptation to public needs, their research, advertising, and cognitive activities.

Another unique phenomenon of the Biržai landscape is karst sinkholes. It is the dissolution of dolomite and gypsum deposits in the depths of the earth when they are washed by surface, ground and groundwater and when a layer of rocks (ground) covering it falls into the underground cavity. This is how gypsum karsts are formed in Northern Lithuania: underground lakes, pits, sinkholes, of which there are more than 9 thousand.

Biržai district is the most affected of karst phenomena in all districts of the country. The formed formations are used as unique tourist attractions. There are 75 sinkholes of various ages, sizes and depths

in the territory of Biržai town. They are unevenly distributed in the territory (Biržų miesto..., 2014). Sinkholes open in the most unexpected places. Houses, roads, trees collapse. Investigations are being carried out to evacuate people and protect property in the area in the event of a threat. The uncovering of underground layers in non-hazardous areas could lead to the establishment of natural museums. People are interested, but often know quite little about such phenomena. There are no more such places in Lithuania, therefore exceptional objects could be presented more actively and ingeniously.

Prior to the construction in Biržai, it is mandatory to carry out geological surveys, confirming that no gypsum layers have formed at the construction site.

Therefore, due to unique natural phenomena and picturesque natural environment, recreational and cognitive tourism could be one of the priority areas in the district and in the town of Biržai. Particular attention should be paid to improving the quality of the natural environment and adapting areas to tourism and recreation.

Green spaces system. A sustainable recreational environment based on green urban spaces is important for the needs of both town guests and especially locals. According to the Master plan of the town territory (Biržų miesto..., 2014a), it is envisaged that the territories of individual green areas are assigned to the land redeemed by the state. In order to form the image of an attractive town and to form a full-fledged system of green areas, it is necessary to:

- preserve a unique natural and cultural environment;
- preserve all existing green spaces in the urbanized part of the town;
- not to carry out construction in the most valuable areas of the town from the point of view of environmental protection and aesthetics;
- form separate green areas in newly acquired urban areas;
- form protective green spaces in the territories of utilities and infrastructure;
- promote the formation of green connections and protective green spaces and the management of existing ones;
- strive for high quality of the elements of the green space system category.

Evaluating all the mentioned arguments, the principal framework of the green space system, which is represented by the functional priority zones of green areas and recreational territories, is determined (Biržų..., 2014b).

It has been established that most of the areas required for recreation cannot be transferred to private ownership. By the decision of Biržai District Council of April 20, 1998, a list of non-privatizable beaches, parks and squares was approved in Biržai, in which the main public spaces of the town are classified as non-privatizable.

In the management of state property, the interests of the society are protected, and opportunities to visit significant objects are ensured. The non-privatizable areas in Biržai town are a potential territorial reserve, forming the system of green spaces in Biržai.

According to the data of the State Enterprise Center of Registers, land plots were formed in 2011-2017 for the individual green areas of Biržai town, which represent Biržai town and are most visited, and they are registered in the Real Estate Register. The purposes, uses, special land use conditions and easements have been established for these territories (Table 3).

The total area of parks, squares registered in the Real Estate Register in Biržai is 90.81 ha and makes up 5.8% of the total area of the cadastral unit of Biržai town. We see that all the main parks of Biržai and other green spaces are registered. 92% of the public space area has been allocated for *Other* land use purposes. According to the type of land use, 54% of the examined objects are classified as separate green spaces. These are plots of land that can be used for separate recreational, scientific, cultural and memorial, as well as protective and ecological green areas.

The type of common use is granted to land plots intended for public use, i.e. the establishment of botanical and zoological gardens, cemetery areas or corpse storage structures as well as public spaces in urban areas. This type of land use is granted to 31% of the analyzed objects and covers an area of 20.24 ha, which covers 22% of the total area of the analyzed objects. This area also includes the projected park with an estimated area of 14.25 ha.

Two types of land use have been identified for the Youth park, the potential of which has not been fully exploited: Recreational territories and Public areas are land plots intended for short-term or long-term (stationary) recreation with recreational buildings.

Table 3

Data on state land plots for recreation registered in the Real Estate Register in Biržai town (compiled according to the data of the State Enterprise Center of Registers, 2020)

Name of the object	Area ha				Purpose	Type of green spaces
	total	average for 1 object	min	max		
Square near Birutė Monument, J.Janonis Square, Park near the Reformed Church and Projected park	20.24	5.06	0.88	14.25	Other	Territories of common use
A.Dauguvietis, Agaras street, Žvejų street parks, other 4 land plots	45.84	6.55	0.43	12.24	Other	Territories of separate green spaces
Youth park	7.71	7.71	-	-	Other	Recreational territories. Territories of public purpose
Astravas Manor Park	18.09	18.09	-	-	Conservation	Land plots of cultural heritage objects

Explanation: * - territories of common use of cities, towns and villages or municipalities

According to the solutions of the master plan, the system of green spaces in Biržai town should occupy an area of 314.88 ha, which would make up 15.3% of the area of the town. Including *separate recreational green spaces* (parks, town gardens, green connections and other recreational green areas) would cover 195.35 ha (9.5% of the urban area). The remaining part should go to *ecological green spaces* – 38.84 ha (i.e. 1.9% of the urban area). These data do not correspond to the real situation. The existing green area should more than double.

The special conditions of land and forest use established for land plots do not have a negative impact on the economic activity of the analyzed objects (implementation of reconstruction technical projects, improvement of infrastructure, operation) and newly created objects intended for rest and recreation. Persons who manage the objects entering the protected territories are provided with conditions to expand recreational activities, to reveal the beauty and uniqueness of the karst region. In nature reserves and other protected territories, restrictions related to the performance of economic activities on agricultural land plots (use of pesticides, herbicides, fertilization of fields) have the greatest impact.

Easements were established in 62% of the examined land plots. In the parks of A.Dauguvietis and Astravas manor, easements of buildings have been established, which give the right to use the building in the park to natural persons. All other established easements grant the right to construct, service, use underground and terrestrial communications. After analyzing the easements established for the objects, it can be stated that they do not cause problems for the use of land plots. The easements provided to the objects in question provide an opportunity to improve the infrastructure of green spaces by building networks. There is an opportunity to install lighting, public toilets and other elements needed to improve the infrastructure.

All analyzed objects are owned by the Republic of Lithuania, according to the loan agreement they are used by Biržai district municipality.

In addition to individual green areas that are on other land, urban green spaces also include forests that are on forestry land. These areas are as independent elements of the town structure. Forests perform recreational, environmental and aesthetic functions. In Biržai, forests cover a relatively small area – 32 ha (1.8% of the town area).

All the main public areas of the town are formed by plots of land and are subject to land use restrictions and easements, which will only facilitate the installation and management of the necessary infrastructure in the areas.

Evaluation of recreational territories. The main recreational resources in Biržai district and the territory of the town are the natural environment (picturesque landscape, water bodies), territories of cultural heritage objects and other objects adapted for recreation (recreation and entertainment infrastructure). An assessment of the possibilities of recreational activities that are currently being carried out or may be carried out in the near future in a five-point system was performed (Table 4).

Table 4

Types of recreational activities planned in Biržai district (compiled according to Biržų miesto..., 2014)

Recreational activities	Activity description \ Veiklos apibūdinimas	Scoring opportunities *
Common	Common, rejuvenating (healing), promoting human recreation in nature, without setting additional special goals	4
Cognitive	Travel and recreation in natural or cultural environments. Cognition of the environment, acquaintance with its history, properties	4
Sports	Active activities and recreation in the natural or artificial environment for the purposes of physical education	2
Entertainment	Relax in nature or in an artificial environment adapted for that purpose, participating in various types of entertainment	2
Business	Relax in nature, collecting forest products, hunting, fishing	4
Therapeutic	Relax in a SPA setting to restore or improve health	3
Average		3

Explanation: * - maximum scoring 5 points

Possible recreational activities in Biržai are evaluated as *average* (3 points out of 5). The total recreational potential is formed from recreational resources throughout the district municipality. In picturesque areas near water bodies (rivers, lakes), recreational activities are rated well (4 points out of 5).

In order to expand common and recreational forms of recreation, it is necessary to increase the tourist attractiveness of the green spaces of Biržai, especially forests. This requires the expansion of resort infrastructure by installing shelters and fireplaces for several groups of visitors as well as expanding additional entertainment and sport infrastructure (by installing volleyball, children's playgrounds, etc.). Particular attention should be paid to recreational areas near water bodies suitable for swimming, boating and fishing. In such resorts it is necessary to install appropriate beach infrastructure, footbridges.

The perspective of therapeutic recreation in Biržai district is related to Likėnai sanatorium, located near Biržai town. Biržai district should purposefully create the necessary special medical recreation and recreation infrastructure. Therefore, more attention should be paid to the management of the recreational environment of the sanatorium.

In summary, it can be stated that the highest-ranking recreational territories in Biržai district municipality, primarily covering the town of Biržai and the Regional park, create opportunities for the development of recreational territorial systems and complexes of national importance. The planned types of recreational activities in Biržai are cognitive, therapeutic, recreational, entertainment and sports activities. However, at present, the opportunities for the development of recreation are assessed by the authors of this work as moderate.

The recreational spaces of the town were appreciated by the residents and land management as well as environmental specialists – experts. Experts who took part in the questionnaire survey asked “Is the creation of a unified, functional system of green spaces an important step towards sustainable urban development?” 100% of the experts noted that it is important. When asked whether green spaces and green plantations are evenly distributed in Biržai, 70% of experts answered that it was uneven.

To the question “What should be done to improve the system of green spaces in Biržai town?”, 66.7% of experts answered that it is necessary to distribute and manage the town's green spaces more rationally. Opinions of the residents differed, but the largest part, i.e. 26% of the respondents believe that more attention should be paid to the management of natural water bodies and their integration into the town's infrastructure. The opinion of experts and residents coincided when they were asked, “Is there enough money allocated for the maintenance of green spaces in Biržai?”, 70% of experts and 49.1% of the residents think that the funds are insufficient. It can be said that residents have little interest or are not sufficiently informed about the allocation of funds for the maintenance of green spaces. According to experts and residents, a large part of the funds can be attracted from the EU structural funds. When asked “Who should take care of the maintenance of green spaces?”, 41.9% of the respondents believe that the municipality, but 23.9% of the residents themselves would agree to contribute to the maintenance and management of green spaces.

To the question "What is missing?", both residents and experts answered that there is a lack of quality planning and equipment, the existing parks and squares were once planted with trees, but the necessary infrastructure was not installed. In some town elderships, there are no green spaces at all for rest and recreation, and the planned spaces are not sufficiently integrated into the residential area. In the central part of the town, green spaces are awkwardly arranged, lacking the integrity and accessibility.

Summarizing the results of the survey, it can be stated that in the town of Biržai there is a lack of local green spaces specially adapted to separate residential quarters (territories of elderships). The condition of the current green spaces is *average*, there are noticeable unevenness of their distribution. The lack of local green spaces in the blocks of multi-apartment houses in J.Basanavičius and Gimnazija elderships is especially pronounced. In Jovaras and Kęstutis elderships, local green spaces are marked only in those parts of the town which are planned in detail as well as in the newly formed, green connections.

Perspectives of development of recreational territories of Biržai town. In order to identify and distinguish the main problems related to the creation, management, development and similar issues of Biržai town recreational territories and to predict development perspectives, the SWOT evaluation of Biržai town recreational territories development was performed (Table 5).

In recent years, in Biržai, more attention and investments have been paid to a representative group of central town green areas, and plots of land are planned for new local green areas (parks and squares) in residential ones, but no afforestation projects have yet been prepared for active and passive recreation zones. When developing the green space system of Biržai town, more attention should be paid to the development of regional and especially local green areas. Local green areas should be included in the general plan as integral elements of the green space system.

Part of the solutions of the Master plan of Biržai town territory is intended for the development of individual green areas, town forests and green areas of other recreational territories. The planning of the green space system is carried out by ensuring territorial integrity and functional continuity, and is aimed at improving the condition of the natural environment and strengthening the ecological balance.

It is in this way that the solutions of the general plan will have an impact on the total energy consumption, reduction of air, soil and water pollution, sustainable development of recreational resources, and all this will have a positive impact on the health of the population. The planned solutions of the general plan will have a direct impact on the preservation of natural areas, their adaptation to the needs of society and the landscape. The next important steps are the implementation of these provisions.

Table 5

Evaluation of Biržai town recreational territories development

STRENGTHS	WEAKNESSES
The district municipality borders the Republic of Latvia. As a result, a lot of tourists not only from Lithuania, but also from Latvia visit Biržai.	The district is located quite far from the largest cities of the country, so its geographical location is not very favourable for tourism development.
Biržai Regional park occupies most of the town area. An important task of this park management is to create favourable conditions for recreation.	Recreational activities and cognitive tourism are underdeveloped in the Regional park.
The landscape structure of Biržai district contains enough unique natural and anthropogenic components that promote the development of tourism.	Not all cognitive objects are properly arranged, there is a problem of their accessibility, there is a lack of parking lots near the objects.
The district is distinguished by unique karst phenomena.	In the territory of Biržai town, some interesting, exclusive sinkholes are not suitable for cognitive visits.
	The earth collapses in unexpected places. The current situation is insufficiently researched and monitored.
There are many exceptional cultural heritage sites both in the town and in the whole district.	The objects are not fully adapted for recreation. Many of them lack well-equipped paths, benches, lighting, rubbish bins, attractive green spaces, and the environment is not adapted to the needs of the disabled.
There are enough public spaces in Biržai for active recreation and leisure.	There are no conditions for sports in parks and squares. The lack of sports infrastructure reflects the small number of sporting events.
	There is a lack of attractive tidy spaces suitable for passive recreation.
In the central part of Biržai, there are many interesting and significant sights representing Biržai.	The center is fragmented (dispersive), - the functional and cultural centers of the town do not coincide.
	Insufficiently arranged town central representative spaces.
The pedestrian bridge connecting the Astravas manor and the town of Biržai attracts visitors. There is a hiking and cycling path in the entrances.	There is a problem with the accessibility of the objects, the access street is narrower than the pedestrian and bicycle path, there are no parking lots, rubbish bins, there are no public toilets.
	There is no infrastructure in the Youth park, where tourists and town residents can relax, have a picnic and take a walk.
Biržai is a town with several water bodies - parts of the Apaščia and Agluona rivers, Širvėna and Kilučiai lakes.	Unattractive beaches, little use of lake opportunities.
	Most of the shores of water bodies are undeveloped, with poor access to them. These reservoirs are not sufficiently integrated into the urban environment.
POSSIBILITIES	THREATS
Biržai District Municipal Council in 2014 approved a special plan for the development and management of the green space system of Biržai town, creating opportunities for the development of the green space system.	Rapid population decline in the district and surrounding regions.
Wider use of EU structural funds for green space management and development.	Legislation, partially restricting opportunities.
Reconstruction projects of the central part of Biržai and other objects intended for recreation and recreation have been prepared.	Due to limited budget funds, the municipal administration is not able to improve the quality of the objects to be visited.
It is planned to apply the objects of attractions to tourism and related activities.	Insufficient attractiveness of the objects, which determines the choice of tourists to come to this area.
	The seasonality of tourism is especially felt.
More active involvement of local communities, companies and individuals in the management of territories.	The public is indifferent to involvement in site management. According to a large part of the local population, the management of the territories must be taken care of by the municipal administration.

Conclusions and proposals

1. It was established that the town of Biržai is dominated by built-up areas and water bodies (in 2019, they occupied 66.1% of the town area). In the cadastral unit of Biržai town, the area of 662.09 ha (42.4%) is occupied by the territories of 42 cultural heritage objects, most of which can be adapted for recreation. The natural framework, which complements the urban structure of Biržai, is underused.
2. It has been established that the analysed objects intended for recreation fall within the boundaries of protected territories. Therefore, the conditions for their owners to expand recreational activities, opportunities to reveal the beauty and uniqueness of the karst region have improved. The easements provided to the objects in question provide an opportunity to improve the infrastructure of green spaces by building networks. There is an opportunity to install lighting, public toilets and other elements needed to improve the infrastructure.
3. Untapped potential of the natural framework for recreation: movement around the lake and along the rivers is not consistently ensured, there is a lack of picturesque lighting, opportunities to stop at intermediate stops when traveling. The potential of historical values is only partially exploited. The center is fragmented (dispersive), the functional and cultural centers of the town do not coincide. After analysing the results of the survey of experts and residents, 72.7% and 40%, respectively, believe that the town of Biržai has enough green spaces, but there is a lack of greenery. According to the respondents, in order to improve the system of green spaces, it is necessary to manage the existing green areas more rationally, using the EU structural funds, involving the public in their management.
4. Using the experience of foreign towns, it is proposed to activate the communities in Biržai in creating a living environment. After arranging the central part of Biržai town, A.Dauguvietis park with accesses, Youth park and Astravas manor homestead park, it is proposed to expand their recreational and cultural functions and adapt them for visiting and getting to know, to give the territories a suitable role in the life of the town community.

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