



EVALUATION OF THE NATURAL AND TOURISM SPACE OF STOBRAWSKI LANDSCAPE PARK

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Abstract

The paper describes and evaluates the space of Stobrawski Landscape Park located in the north-western part of Opolskie Voivodeship. The study on natural and tourism values was conducted by the “classification-by-points” method. The following evaluation criteria were adopted for the natural values: forestation rate, heterogeneity, the occurrence of natural protection forms and the occurrence of surface water, while for the tourism values, the criteria included: cultural diversity, the number of objects of historical value, the length of tourist trails, the presence of educational paths, and the occurrence of accommodation and catering facilities. Three evaluations, namely natural, tourism, and comprehensive tourism-and-natural evaluation, were carried out. The Head Office of Land Surveying and Cartography data, specialist literature, and field research results were used. The conducted analysis revealed the spatial diversity of the park’s assets, which allows the authors to suggest measures aimed at exploiting the tourism potential of the area concerned while observing the principle of sustainable development. In terms of the natural environment, the most valuable fragments of the area under study are river valleys, particularly the Oder river valley, and the north-western part of the park where, *inter alia*, 4 nature reserves are located. In view of the low tourism traffic in the park, there is no concern about the loss of natural values of this area due to tourists’ pressure.

Keywords: natural and tourism values, assessment, landscape, sustainable tourism, Opolskie Voivodeship

INTRODUCTION

The areas under nature protection account for a significant part of Poland's territory. At the end of 2016, the area of legally protected land was over 10.2 million ha, which accounted for 32.5% of the area of Poland (GUS 2017). Of all the forms of nature protection, landscape parks are of significant importance. In accordance with the definition provided for in the Act of 16 April 2004 on nature protection (Journal of Laws 2018.0.142) "*A landscape park includes an area protected for its natural, historical and cultural values as well as landscape values in order to preserve and popularise these values under the conditions of sustainable development*".

Landscape parks include areas of high natural as well as aesthetic and landscape values. They are areas widely available to the public as agricultural land, forest areas, and other properties within their area are still used commercially. The primary objective of the functioning of landscape parks is to preserve and disseminate natural and cultural values. Moreover, one of the basic functions assigned to this form of nature protection is to make the area available to the public and suitable for a variety of tourism and leisure forms, e.g. for purposes associated with recreation, sport, health or education – in particular environmental one (Zaręba 2000). A necessary condition for the functioning of tourism within the boundaries of landscape parks is to maintain a balance between the natural environment and the tourists' and local communities' needs.

The use of protected areas for tourism purposes poses a threat of the loss of natural resources. In order to avoid this, proper management of tourism development is required. Proper tourism infrastructure development that enables both tourists' contact with the nature and the protection of most valuable and vulnerable parts of a particular area plays an important role in generating appropriate social attitudes while contributing to the preservation of natural values in their unchanged state (Ziółkowski 2009). Proper management of a landscape park's resources is aimed at limiting activities which are likely to interfere with the basic objectives of park protection. Effective management requires that local conditions should be well known. This issue is addressed by comprehensive evaluation of natural and tourism space (Kistowski and Kowalczyk 2011).

The aim of the paper is to evaluate the natural and tourism space of Stobrawski Landscape Park (SLP), and to analyse the possibilities for using the park's values for the purposes of (sustainable) tourism. In addition, two research questions have been raised: (1) which parts of the park have the highest natural and tourism values?, and (2) how to develop tourism in the park without reducing its natural values?

LITERATURE OVERVIEW

Kaczmarek *et al.* (2005) distinguished two groups of methods for assessing the spatial diversity of resources and tourism assets of a particular area. In the first group, they included methods appropriate for the preliminary stage of research, including a description, research of literature, surveys, and inventory. In the second group, they included methods typical of an advanced stage of research, including *inter alia* classification by points and taxonomic methods. These methods enable the evaluation i.e. determination of a particular area's value (Jania 2007). Complete evaluation should include an assessment of natural, landscape, and cultural resources. In order to carry out a proper evaluation, it is necessary to assess the natural and anthropogenic potential of a particular area (Fornal-Pieniak and Źarska 2014).

The authors who have been involved in the evaluation of natural and tourism resources by the classification-by-points method include *inter alia*: Warszzyńska (1970) and (1974); Kowalski (1996); Kruczek (2002); Dubel (2004); Brown (2006); Jania (2007); Myga-Piątek (2007); Kumar and Kumar (2008); Galiński *et al.* (2013); Duda-Seifert (2015). In turn, the issue of environmental evaluation in protected areas has been addressed by, *inter alia*, the following authors: Fornal-Pieniak *et al.* (2013); Kistowski and Kowalczyk (2013); Mastalska-Cetera and Warczewska (2015); and Okello *et al.* (2008).

One of the most frequently employed methods of area evaluation is classification by points which is well-suited for the characterisation of diverse elements of the natural environment such as the topography, climate, hydrology, soils, flora and fauna, and cultural heritage monuments (Ziernicka-Wojtaszek and Zawora 2011; Ziarkowski 2007). Classification by points, due to the freedom of choice of the range of values and criteria establishment, is a subjective method, yet it allows a relatively objective, comprehensive and measurable image of the tourism values of the area under analysis to be obtained (Mitura 2016).

An important stage of classification by points is the selection of a "basic assessment" field. A basic assessment field is an area for which a specific value (a number of points) obtained from an assessment of environmental resources can be precisely determined (Bajerowski *et al.* 2007). This value is determined for the entire area of a particular field based on an adopted scale. Bartkowski (1986) and Sołowiej (1987) concluded that the selection of basic assessment fields was determined by, *inter alia*, the aim, area, scale, and method of the study. On the other hand, Balon and Krąż (2013) indicated three main types of basic assessment fields, which include administrative units (e.g. a commune or a powiat), geometric fields (e.g. squares or hexagons), or natural units (e.g. river catchment basins or landscape types).

MATERIALS AND METHODS

The evaluation of the natural and tourism space of Stobrawski Landscape Park was carried out in 2017 and 2018. The study involved collecting and analysing the study materials and the literature addressing issues associated with natural and tourism values of the park. Strategic documents of the communes situated within the area of SLP, such as development strategies, development plans, and area development plans, were analysed. *Inter alia*, the following were used: Register of Historic Monuments of Opolskie Voivodeship, and registers of historic monuments of particular communes located within the area of the park, a plan of protection of Stobrawski Landscape Park, and materials from the Complex of Opole Landscape Parks database. Another important part of the first stage of work was to collect cartographic materials. The cartographic data necessary for the analyses were sourced from the “Opolskie w Internecie” portal, www.maps.opolskie.pl, and geoportal.gov.pl. In order to supplement the literature data from September 2017 to April 2018, field research was carried out with the aim to verify the natural resources of the park, and to collect photographic documentation of both natural and cultural resources. The conducted analyses resulted in the presentation of the spatial arrangement of natural and tourism values.

In order to carry out the evaluation concerned, the “classification-by-points” method, described *inter alia* by Bajerowski *et al.* (2007) and by Ziernicka-Wojtaszek and Zawora (2011), was employed. The values of the park were divided into two groups, namely natural and tourism values. Such a division was supposed to help provide an answer to the question as to how effectively model the tourism development without deteriorating the natural resources and values. The area was divided into a network of 201 squares with sides of 2 km. Each field was assigned a serial number and point values in relation to the analysed elements of the geographical environment, cultural values, and the development of tourism infrastructure. For the proper assessment of the values under analysis, an appropriate evaluation scale was adopted. Evaluation maps were generated using the QGIS software. While establishing the network, it was assumed that the so-called residual polygons i.e. those in which the studied area is smaller than 5% (0.2 km²) of the total polygon area would not be subjected to an analysis. Such an assumption clearly reduced the number of polygons subjected to an analysis, with a minimum impact on the result of evaluation.

The following criteria were adopted for the performance of the natural evaluation of the area under study: forestation rate, heterogeneity of habitats, the occurrence of protected areas, the presence of natural monuments, and the occurrence of surface waters. On the other hand, the criteria applied for the tourism evaluation of SLP included: the diversity of cultural elements, the number of historic monuments entered into the register of historic monuments, the length

of tourist trails, the presence of educational paths, and the occurrence of accommodation and catering facilities. Detailed information on the criteria and point weights is presented in Tables 1 and 3. The division of the assessment fields into classes is presented in Tables 2, 4 and 5.

Table 1. Criteria for the assessment of natural values

Assessment criteria	Value	Classification by points
Forestation rate – the percentage of a forest in relation to the entire area of a square	71 – 100	4
	51 – 70	3
	26 – 50	2
	6 – 25	1
	0 – 5	0
Heterogeneity – expressed by the number of habitats (e.g. forest, meadow, river, oxbow lake, pond, etc.) within a particular square	4 and more	4
	3	3
	2	2
	1 habitat	1
The occurrence of protected areas	Nature reserve	4
	Natura 2000 site	3
	Ecological site or a natural-and-landscape complex	2
	Landscape park	1
The occurrence of natural monuments	The presence of natural monuments	1
	No natural monuments	0
The occurrence of surface waters	A water body with a shoreline longer than 0.5 km	4
	A water body with a shoreline shorter than 0.5 km	3
	River	2
	Wetland	1
	No surface waters	0

Table 2. Natural values' attractiveness classes

Attractiveness classes of the natural values within a zone under study	
I	An area of very high natural values, 12 and more points
II	An area of high natural values, 7 – 11 points
III	An area of medium natural values, 3 – 6 points
IV	An area of low natural values, fewer than 3 points

Table 3. Criteria for the assessment of tourism values

Assessment criteria	Value	Classification by points
Diversity of cultural elements within a particular research unit (religious buildings e.g. historic churches, wooden or brick, roadside shrines, secular buildings: historic wooden houses, etc.)	High diversity (more than 4 types of cultural sites/objects)	3
	Medium diversity (2–3 types of cultural sites/objects)	2
	Low diversity (1 type of a cultural site/object)	1
	No cultural sites/objects	0
The number of historic monuments entered into the register of historic monuments	More than 10	3
	From 6 to 10	2
	From 2 to 5	1
	Fewer than 2	0
The length of tourist trails crossing a particular unit	Trails with a length of over 2 km	3
	Trails with a length from 1 km to 2 km	2
	Trails with a length of less than 1 km	1
	No tourist trails	0
The occurrence of educational paths	The occurrence of educational paths	1
	No educational paths	0
The occurrence of accommodation and catering facilities	More than 6 facilities	3
	From 4 to 6 facilities	2
	From 1 to 3 facilities	1
	No accommodation and catering facilities	0

Table 4. Tourism values' attractiveness classes

Attractiveness classes of the tourism values within a zone under study	
I	An area of very high tourism values, 10 and more points
II	An area of high tourism values, 7 – 9 points
III	An area of medium tourism values, 3 – 6 points
IV	An area of low tourism values, fewer than 3 points

Table 5. Natural-and-tourism values' attractiveness classes

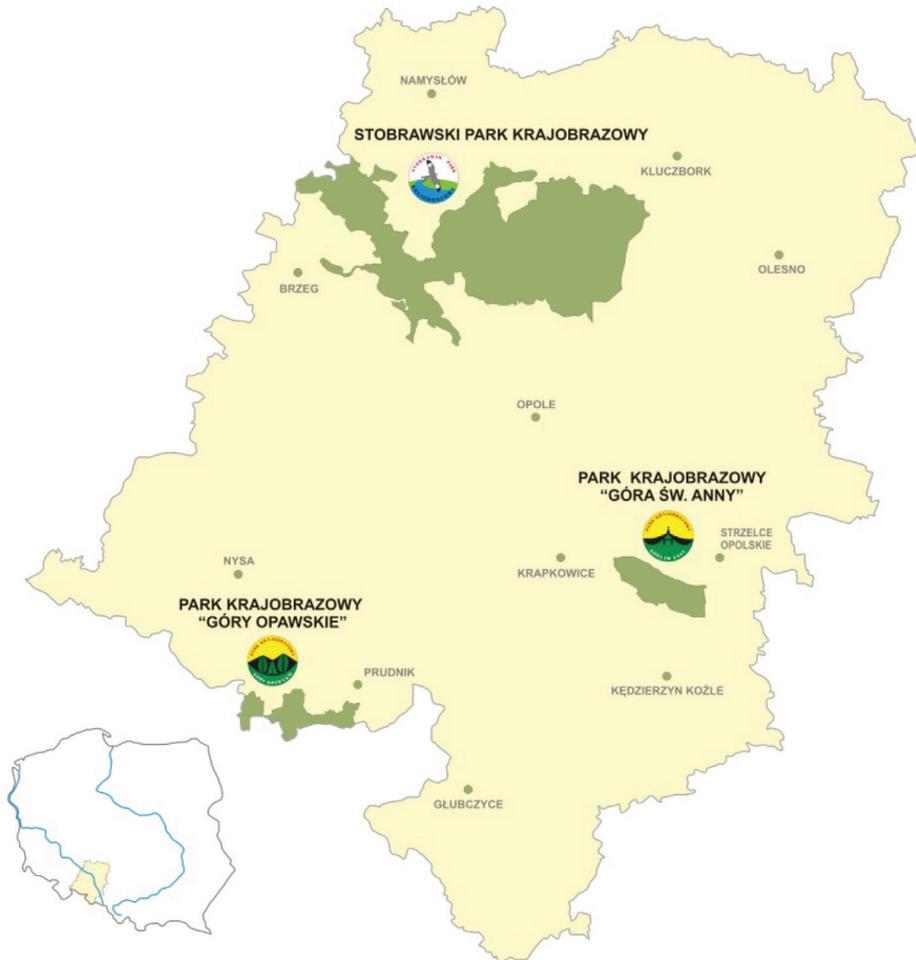
Attractiveness classes of the natural-and-tourism values within a zone under study	
I	An area of very high natural-and-tourism values 19 and more points
II	An area of high natural-and-tourism values 14 – 18 points
III	An area of medium natural-and-tourism values 8 – 13 points
IV	An area of low natural-and-tourism values fewer than 8 points

CHARACTERISTICS OF THE AREA UNDER STUDY

Stobrowski Landscape Park was established pursuant to Ordinance of Opole Governor of 28 September 1999 on the establishment of Stobrowski Landscape Park (Journal of Laws of Opolskie Voivodeship, No 38, item 255). The aim of the establishment of the park is to preserve and popularise the natural, historical, cultural and landscape values of the eastern part of the Silesian Lowlands. The park is located entirely in Opolskie Voivodeship (Fig. 1), and its area is 52 636.5 ha. The Ordinance cited above specifies the park boundaries, and lays down prohibitions and restrictions as well as exemptions from prohibitions and restrictions. The park is a part of the local government budget unit known as the Complex of Opole Landscape Parks (*Zespół Opolskich Parków Krajobrazowych*, ZOPK). The institution operates pursuant to Order No 18/03 of the Opole Governor of 29 January 2003 on the liquidation of the Management Board of Opole Landscape Parks and the establishment of the Complex of Opole Landscape Parks.

The area subjected to the analysis is located in the north-western part of Opolskie Voivodeship. Based on the physicogeographical regionalisation of Poland by Kondracki (2002), the area of SLP is located in the North European Plain province, Central Poland Lowlands (318) sub-province, the Silesian Lowlands (318.5) macroregion. Within the Park, the following mesoregions are distinguished: Wrocław Valley (318.52) – in the southern part of the park, Oleśnica

Plain (318.56) – including the western part, and Opole Plain (318.57) which includes areas of the central and eastern part of Stobrawski Landscape Park, and accounts for approx. 65% of the area under study.



Source: ZOPK materials

Figure 1. The location of Stobrawski Landscape Park in Opolskie Voivodeship

The area subjected to an analysis has a length (east-west) of approx. 45 km, while the average width (north-south) is approx. 15 km. The population density of the area under study is estimated at 20 people per km² (Badora 2000); this value is significantly lower than the average for Opolskie Voivodeship, which is 106 people per km² (Statistical Yearbook of Opolskie Voivodeship 2015). Stobrawski

Landscape Park is a typically forest park; forests occupy almost 79% of the area under study, and are definitely dominant within the land use structure. The remaining part of SLP comprises: agricultural land – approx. 19%, surface waters – approx. 1%, and urbanised areas – approx. 1%. Industrial areas occupy a negligible area of the park, which mainly includes land used by the timber industry.

In administrative terms, the area of SLP belongs to Opolskie Voivodeship. *Poviats* being part of the park include: Namysłów, Opole, Brzeg, and Kluczbork. The park is located on twelve communes of which the largest percentage of the park area is occupied by: Murów, Pokój, Lubsza, Popielów, and Świerczów. Other communes occupying small parts of the park include: Łubniany, Dobrzeń Wielki, Dąbrowa, Kluczbork, Lasowice Wielkie, Lewin Brzeski, and Wołczyn. All the mentioned localities are rural communes.

EVALUATION OF THE NATURAL AND TOURISM SPACE OF STOBRAWSKI LANDSCAPE PARK

The evaluation concerned was carried out in two stages. At the first stage, the natural values of the area under study were assessed; in turn, at the second stage, the space was evaluated for its tourism values. The effect of the performed work was a map combining natural and tourism evaluation. Based on the previously described indices, the classification of attractiveness of the natural values of an area under study was established. Four classes of varied natural attractiveness were distinguished:

- Class I – areas of very high natural values (squares which gained 12 and more points),
- Class II – areas of high natural values (squares which gained from 7 to 11 points),
- Class III – areas of medium natural values (squares which gained from 3 to 6 points),
- Class IV – areas of low natural values (squares which gained fewer than 3 points).

The squares which obtained the maximum value of 18 points were squares 18, 188, 195, and 197 (Fig. 2). The vast majority of the area under study has very high or high natural values. Areas with the greatest natural potential include the north-western part of SLP, where age-old deciduous tree stands (the remains of Śląska Primeval Forest which used to occupy these areas) are found. In terms of natural values, river valleys are very attractive and attractive, in particular the Oder river valley where nearly all squares subjected to the analysis gained more than 12 points, which made them classified as Class I. Moreover, it is exactly within the Oder river valley that three of the four squares (No 188, 195, and 197),

which gained the maximum number of points determining the natural value of a particular area, are found (Fig. 2).

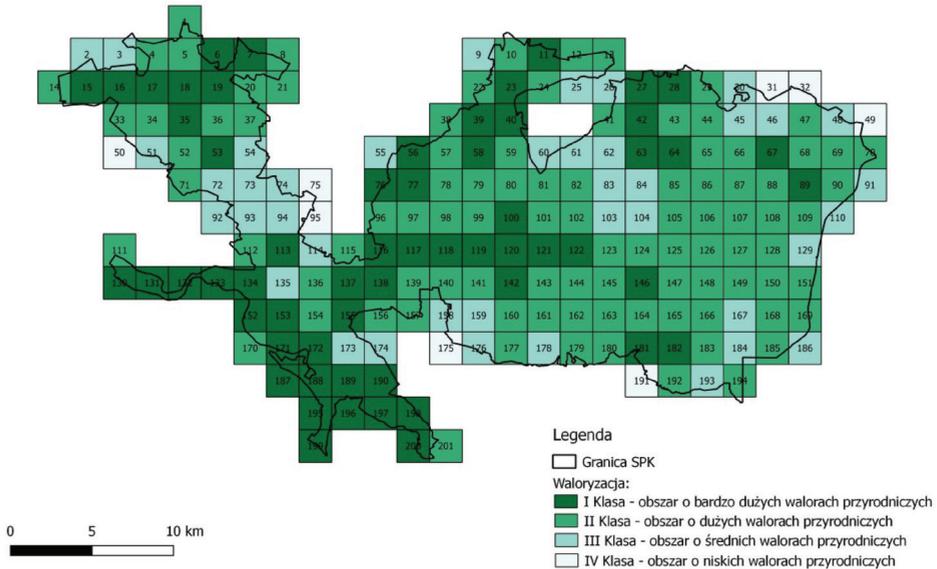


Figure 2. Evaluation of natural values of Stobrawski Landscape Park

Valleys of smaller rivers, e.g. Stobrawa and Budkowiczanka (the central and northern part of SLP), which form a mosaic of fields, meadows, and woodlots, are also exceptionally valuable. Oxbow lakes and fish ponds have a very powerful effect on the natural values of the area under study. Oxbow lakes (which are primarily found in the Oder and Stobrawa river valleys) along with their surroundings are among the most naturally valuable types of ecosystem. At the same time, these habitats are among the most endangered ecosystems, both within the SLP and the entire Opolskie Voivodeship. This is where *inter alia* the water caltrop (*Trapa natans*) and floating fern (*Salvinia natans*), rare and protected plants typical of Stobrawski Landscape Park, are found. On the other hand, fish ponds (mainly located in the central, northern, and western part of SLP), which are a reservoir of biodiversity, form a mosaic of different environments whose common feature is abundance of water. Approx. 50% of the lengths of pond banks border forests, which provides good conditions for the habitat of many rare woodland and aquatic species. In each environment, different species are found, which makes these ponds very exceptional from the natural perspective.

The habitats inextricably linked to river valleys are meadow habitats which definitely increase the natural values of the area under analysis. These habitats

provide a reservoir of biodiversity in the severely transformed agricultural landscape. They also offer very good conditions to the occurrence of a large number of vanishing and rare animal and plant species. In addition to the values associated with the vegetation found in this habitat, meadows are ecological corridors of great importance to migrating animals.

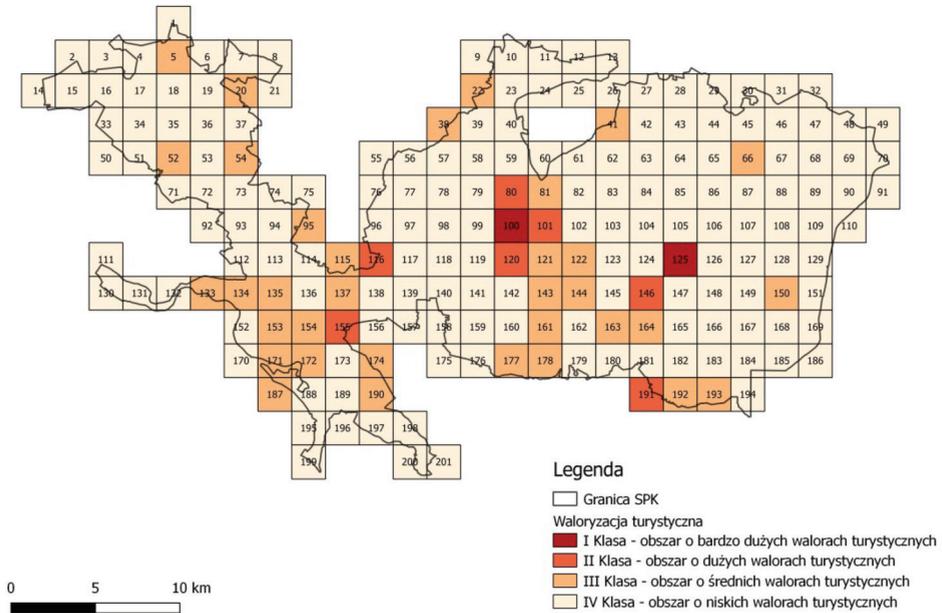


Figure 3. Evaluation of tourism values of Stobrawski Landscape Park

The second part of the evaluation concerned the evaluation of elements associated with tourism in the area under study. The area of Stobrawski Landscape Park is a place where elements associated with culture and history of this area occur. The historic monuments most frequently occurring there are residential and farm buildings, technology artefacts, parks, palaces, churches, cemeteries, and roadside shrines. Many of these valuable historic monuments and artefacts are not entered into the list of protected objects and facilities of Opolskie Voivodeship. Based on the previously described indices, the classification of attractiveness of the natural values of an area under study was established. By summing up the indices described above, the classification of attractiveness of the tourism values of the area of Stobrawski Landscape Park was established. This classification is comprised of 4 classes:

- Class I – areas of very high tourism values (squares which gained 10 and more points),

- Class II – areas of high tourism values (squares which gained from 7 to 9 points),
- Class III – areas of medium tourism values (squares which gained from 3 to 6 points),
- Class IV – areas of low tourism values (squares which gained fewer than 3 points).
- Class I i.e. areas of very high tourism values only includes two squares No 100 and 125 which gained 11 and 10 points, respectively. The evaluation of tourism values is presented in Fig. 3.

The vast majority of the area under study has very low tourism values. The highest concentration of the areas of very high, high and medium tourism values is found in the vicinity of localities of Pokój and Zagwiździe, an in the Oder river valley (Fig. 3).

By summing up the score of particular squares achieved during the evaluation of natural and tourism values, a synthetic map was generated, which presents the natural-and-tourism evaluation of Stobrawski Landscape Park (Fig. 4).

The zones under study were divided into the following natural-and-tourism values' attractiveness classes:

- **Class I** – areas of very high natural-and-tourism values (squares which gained a total of 19 and more points),
- **Class II** – areas of high natural-and-tourism values (squares which gained a total of 14 to 18 points),
- **Class III** – areas of medium natural-and-tourism values (squares which gained a total of 8 to 13 points),
- **Class IV** – areas of low natural-and-tourism values (squares which gained a total of fewer than 8 points).

The percentages of particular classes are as follows: Class I – 9%, class II – 26%, class III – 34%, class IV – 31%. It is evident that areas of Class III i.e. those of medium natural-and-tourism values are dominant. The areas of very high values are concentrated in five regions: the surroundings of the locality of Pokój, the surroundings of the locality of Zagwiździe, the surroundings of the locality of Karłowice, the Oder river valley, and the north-western part of SLP overgrown by age-old deciduous tree stands. Areas of low values are most commonly the areas covered by a century-old pine monocultures. Of all the squares, the maximum number of points i.e. 23 was gained by area No 100 which includes the locality of Pokój and its immediate surroundings. This area is characterised by high natural and tourism values.

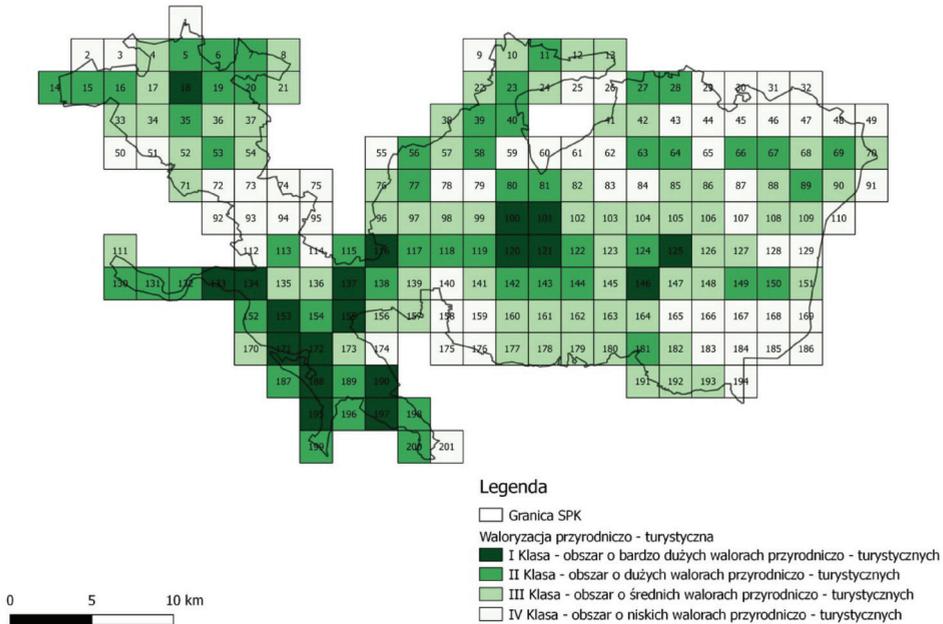


Figure 4. Evaluation of natural-and-tourism values of Stobrawski Landscape Park

TYPOLOGY AND REGIONALISATION OF NATURAL-AND-TOURISM VALUES OF THE AREA UNDER STUDY

Based on the previously conducted evaluation, typology and regionalisation of the area under study were carried out, which considered natural-and-tourism values of Stobrawski Landscape Park. At the first stage, the typology of the area of Stobrawski Landscape Park was carried out. This operation involved the division of the area under study into types with similar features, which influence the natural-and-tourism potential (Fig. 5).

The area of the SLP was divided into VI types:

- **Type I** – it includes an area located in the north-western part of the park; this is an area of very high natural values which are contributed to by the high forestation rate and the occurrence of protected areas such as nature reserves and a Natura 2000 site.
- **Type II** – an area including the south-western and central part of SLP; this part is characterised by very high natural values which are contributed to by the considerable heterogeneity of habitats, the occurrence of protected areas, and a high percentage of surface waters.

- **Type III** – it includes the area located in the northern part of the park; it is characterised by high natural values and medium tourism values. The natural values are primarily contributed to by the high percentage of surface waters, including fish ponds, and very high heterogeneity. On the other hand, the tourism value of this area is determined by the high diversity of cultural elements, and the presence of objects and sites entered into the register of historic monuments of Opolskie Voivodeship.
- **Type IV** – an area located in the north-eastern part of the area under study; it is characterised by high natural values and low tourism values. This area is characterised by high forestation rate and heterogeneity, and by the presence of natural monuments and educational paths.
- **Type V** – it occupies the central area of Stobrawski Landscape Park, and is characterised by very high natural and tourism values. This area is primarily distinguished by the very high diversity of cultural elements as well as a great number of historic monuments; additionally, many tourist trails are found in this area.
- **Type VI** – it occupies an extensive part of the Park, and is characterised by high or medium natural values, and low tourism values. This situation has been contributed to by the low heterogeneity of habitats, a low percentage of surface waters, and the lack of nature protection forms other than a landscape park. Moreover, a very small number of historic monuments are found in this area.

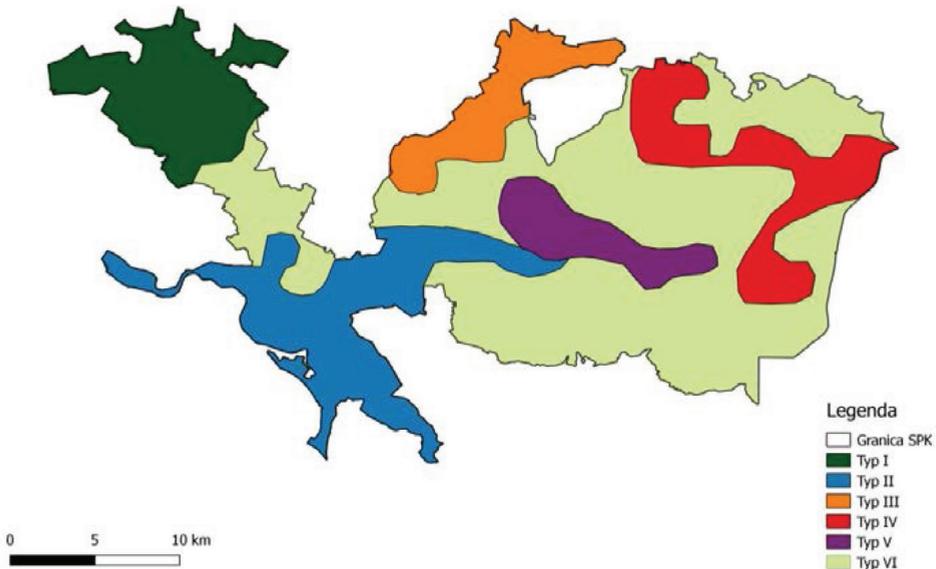


Figure 5. Typology of the area of Stobrawski Landscape Park

By carrying out the regionalisation, the areas of similar classes of natural-and-tourism attractiveness were divided into groups. This resulted in the division of the area of SLP into three regions (Fig. 6):

- **Region I** – areas of high natural-and-tourism values,
- **Region II** – areas of medium natural-and-tourism values,
- **Region III** – areas of low natural-and-tourism values.

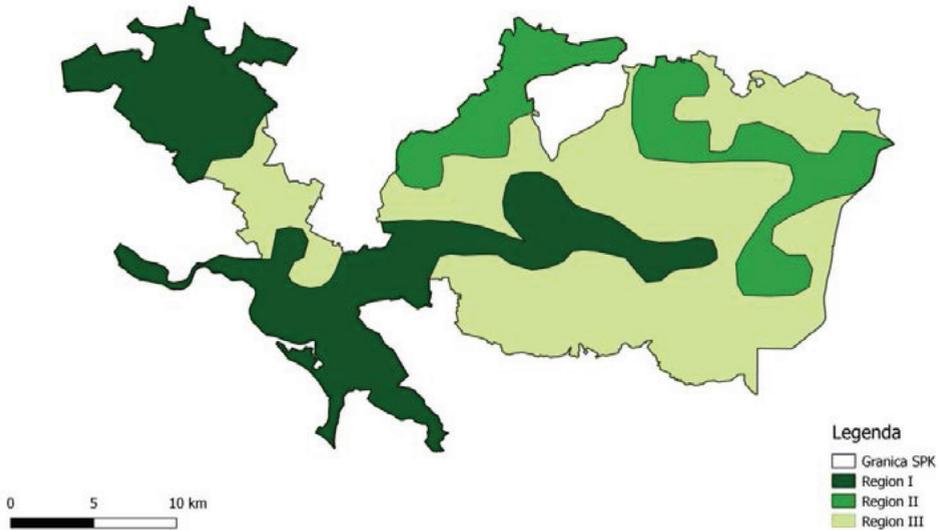


Figure 6. Regionalisation of the area of Stobrawski Landscape Park

Region I comprises the north-western part of the park as well as the Oder and Budkowiczanka river valleys including the localities of Pokój, Karłowice, Murów, and Zagwiździe. Region II comprises the Stobrawa river valley along with numerous complexes of fish ponds, and an area located in north-eastern part of SLP, which includes the Bogacica and Budkowiczanka river valleys along with the localities of Dąbrówka Dolna, Radomierowice, Nowa Bogacica, and Stare Budkowice. In turn, region III mainly comprises dense complexes of pine coniferous forests which are characterised by low diversity and the lack of elements contributing to high natural-and-tourism potential.

DISCUSSION

The attractiveness of Stobrawski Landscape Park was contributed to, to the greatest extent, by the forestation rate, heterogeneity of habitats, the presence of surface waters, and the presence of nature protection forms, tourist trails, and historic monuments. During studies related to the evaluation of a particular area,

these factors are regarded by many authors as crucial (Dubel and Szczygielski 1982, Bielak 2010).

The study concerned confirmed the information contained in a publication by Badora *et al.* (2003), according to which Stobrawski Landscape Park is characterised by values which render this area well-suited for the development of tourism and recreation. These values, as mentioned by the authors, include: a large number of forests, diversity of fauna and flora, and a harmonious landscape forming a mosaic of meadow, forest, and aquatic ecosystems. The value of this area resulting from cultural values reflected in significant historic monuments (the locality of Pokój, steel plant in Zagwizdzie) was additionally emphasised. Important factors contributing to the high values of SLP also include the favourable, mild climate and the interesting geomorphology of the area (inland dunes, river valleys). This publication, which is the only publication so far that describes tourism in the area under study, contains information that the values of Stobrawski Landscape Park are made insufficient use of, which is confirmed in this study. This is reflected, *inter alia*, by the very poorly developed tourism infrastructure in the form of accommodation and catering facilities.

Powichrowska and Demianowicz (2005) emphasise in their publication, that the main condition for the development and functioning of tourism within protected areas is the need to maintain an appropriate balance between the natural environment, tourists' needs, and the local community's needs. The area under study has high, and occasionally very high natural values and, locally, high tourism values, which definitely enables the development of tourism in this area. Tourism traffic within SLP is low, therefore there is no concern about the possible imbalance between the natural environment resources and tourists' needs. Certainly, the appropriate development of the area of the park can possibly ensure sustainable tourism activities within its borders.

However, in view of the fact that the area under study is a form of nature protection, the main aim for the landscape park services and the local authorities is the protection against destruction and degradation of natural and landscape values, which is noted in studies by many authors e.g. Zaręba (2000) and Popławski (2009). Therefore, tourism traffic in the area of SLP needs to be observed, and particular attention should be paid to its influence on the areas of the highest natural values, namely the Oder river valley and the north-western part of the park in which 4 nature reserves are located.

The main factor affecting the presence of tourists in valuable areas is the natural environment values (Kiryłuk 2005). The results of the conducted evaluation clearly show that the area has outstanding natural values. Consequently, appropriate investments and organisational and promotional measures can certainly significantly increase the tourism traffic in the area under study.

The conducted study showed that thanks to natural-and-tourism values, this area is well-suited for the development of sightseeing tourism, urban tourism

and adventure tourism including horse riding, canoeing, fishing, hunting, bird-watching, geocaching, or questing. Similar conclusions as regards the possible forms of tourism in the areas of landscape parks were drawn by Mastalska-Cetera and Warczewska (2015). The areas of the highest natural-and-tourism values which exert the greatest effect on the development of tourism include the surroundings of the localities of Pokój, Zagwiździe, and Karłowice, the Oder and Stobrawa river valleys, and the north-western part of the park. These results are confirmed in a paper by Badora *et al.* (2003).

In Lower Silesian landscape parks, the development of tourism is based on natural, cultural, and landscape wealth. These resources enable the very good performance of various forms of tourism. In these areas, the most common forms of tourism include sightseeing tourism, cultural tourism, and natural and recreational tourism (Mastalska-Cetera and Warczewska 2015). In view of similar values which are found in Stobrawski Landscape Park, this area should draw on the good standards of the areas better developed in terms of tourism, an example of which may be certain landscape parks (e.g. the Barycz Valley) located in Dolnośląskie Voivodeship.

CONCLUSIONS

Having summarised the conducted evaluation, it can be concluded that the space under analysis has various natural-and-tourism values. The greatest value of Stobrawski Landscape Park is certainly its high, and occasionally very high natural values which provide opportunities for the development of tourism in this area. The factors which have contributed, to the greatest extent, to the natural-and-tourism attractiveness of Stobrawski Landscape Park, include: high forestation rate, heterogeneity of habitats, the presence of surface waters, and the presence of nature protection forms, tourist trails, and historic monuments.

The places characterised by the highest natural-and-tourism values are the surroundings of the localities of Pokój, Zagwiździe, and Karłowice, and it is primarily in these places that tourism products attracting tourist to the region should be created. On the other hand, large parts of pine monocultures, mainly located in the eastern part of the park, have low natural-and-tourism values; however, these forest are a good location for the establishment of tourist trails due to the therapeutic found there.

In terms of the natural environment, the most valuable fragments of the area under study are river valleys, particularly the Oder river valley, and the north-western part of the park where, *inter alia*, 4 nature reserves are located. In view of the low tourism traffic currently occurring in the park, there is no concern about the loss of natural values of this area due to tourists' pressure. However, the tourism traffic needs to be observed with particular care for the

above-mentioned areas. One of the main problems contributing to the reduction in tourism values of the area under study is the very small number of objects comprising the accommodation and catering facilities.

REFERENCES

Badora, K. (2000). *Środowisko fizyczno-geograficzne*. W: S. Koziarski, J. Makowiecki (red.), *Walory przyrodniczo-krajobrazowe Stobrawskiego Parku Krajobrazowego*. Opole: Wyd. Uniwersytetu Opolskiego.

Badora, K., Furmanek, M., Hebda, G., Nowak, A., Nowak, S., Spałek, K., Trela, A. (2003). *Materiały do Planu Ochrony Stobrawskiego Parku Krajobrazowego*. Bio-Plan, Krasiejów (praca niepublikowana).

Bajerowski, T., Biłozor, A., Cieślak, I., Senetra, A., Szczepańska, A. (2007). *Ocena i wycena krajobrazu*. Olsztyn: Wyd. Educaterra.

Balon, J., Krąż, P. (2013). *Ocena jakości krajobrazu: dobór prawidłowych jednostek krajobrazowych*. W: Identyfikacja i waloryzacja krajobrazów: wdrażanie Europejskiej Konwencji Krajobrazowej: referaty konferencyjne. Warszawa: Generalna Dyrekcja Ochrony Środowiska.

Bartkowski, T. (1986). *Zastosowania geografii fizycznej*. Warszawa: PWN.

Bielak, B. (2010). *Ocena atrakcyjności turystycznej powiatu nowosądeckiego*. W: M. Reichel (red.), *Transgraniczna turystyka ekologiczna jako szansa rozwoju Sądeckizny*. Wyd. Starostwo Powiatowe w Nowym Sączu.

Brown, G. (2006). *Mapping landscape values and development references: a method for tourism and residential development planning*. *International Journal of Tourism Research* 8(2): 101-113. DOI: 10.1002/jtr.562

Dubel, K. (2004). *Waloryzacja przyrodniczo-krajobrazowa gmin dla potrzeb planowania i organizacji na wsi*. W: I. Sikorska-Wolak (red.), *Turystyka w rozwoju lokalnym* (s. 158-167). Warszawa: Wyd. SGGW.

Dubel, K., Szczygielski, K. (1982). *Ocena przydatności środowiska przyrodniczego województwa katowickiego do potrzeb turystyki i wypoczynku*. *Czasopismo Geograficzne* 53(2): 159-178.

Duda-Seifert, M. (2015). *Kryteria oceny atrakcyjności turystycznej obiektów architektury w świetle literatury*. *Turystyka Kulturowa* 4: 74-88.

Fornal-Pieniak, B., Wysocki, C., Chyliński, K.W. (2013). *Waloryzacja turystyczna Ciężkowicko-Roznowskiego Parku Krajobrazowego*. *Problemy Ekologii Krajobrazu* 34: 281-285.

Fornal-Pieniak, B., Źarska, B. (2014). *Metody waloryzacji krajobrazowej na potrzeby turystyki i rekreacji*. *Acta Scientiarum Polonorum Formatio Circumietus* 13(2): 3-9.

GUS (2017). *Environment 2017*. Central Statistical Office. Warsaw: Statistical Information and Elaborations.

Jania, M. (2007). *Próba waloryzacji przyrodniczej Ziemi Kłodzkiej na potrzeby turystyki i rekreacji*. W: M. Rzętała (red.) *Z badań nad wpływem antropopresji na środowisko* (s. 28-41). Sosnowiec: Wyd. Wydział Nauk o Ziemi UŚ.

Journal of Laws of Opolskie Voivodeship, No 38, item 255 [Rozporządzenie Wojewody Opolskiego z dnia 28 września 1999 r. w sprawie utworzenia Stobrawskiego Parku Krajobrazowego (Dz.Urz. Woj. Op. Nr 38 poz. 255)].

Journal of Laws of 2018.0.142 [Ustawa z dnia 16 kwietnia 2004 r. o ochronie przyrody (Dz.U.2018.0.142)].

Kaczmarek, J., Stasiak, A., Włodarczyk, B. (2005). *Produkt turystyczny. Pomysł, organizacja, zarządzanie*. Warszawa: PWE.

Kiryłuk, H. (2005). *Uwarunkowania ogólne*. W: B. Poskrobko (red.), *Zarządzanie turystyką na obszarach przyrodniczo cennych* (s. 103-124). Białystok: Wyd. Wyższej Szkoły Ekonomicznej w Białymstoku.

Kistowski, M., Kowalczyk, J. (2011). *Wpływ transformacji modelu zarządzania parkami krajobrazowymi na skuteczność realizacji ich funkcji w przestrzeni Polski*. Biuletyn PAN KPZK 247: 1-165.

Kistowski, M., Kowalczyk, J. (2013). *Rozwój turystyki w wybranych parkach krajobrazowych Polski w świetle koncepcji cyklu ewolucji obszarów turystycznych*. *Problemy Ekologii Krajobrazu* 34: 77-85.

Kondracki, J. (2002). *Geografia regionalna Polski*. Warszawa: PWN.

Kowalski, R. (1996). *Przegląd metod waloryzacji środowiska przyrodniczego*. *Folia Turistica* 6: 7-18.

Kruczek, Z. (2002). *Atrakcje turystyczne. Metody oceny ich odbioru – interpretacja*. *Folia Turistica* 13: 37-61.

Kumar, M., Kumar, P. (2008). *Valuation of the ecosystem services: A psycho-cultural perspective*. *Ecological Economics* 64(4): 808-819. DOI: 10.1016/j.ecolecon.2007.05.008

Mastalska-Cetera, B., Warczewska, B. (2015). *Możliwości rozwoju turystyki zrównoważonej na przykładzie dolnośląskich parków krajobrazowych*. W: A. Rapacz (red.), *Gospodarka turystyczna w regionie. Przedsiębiorstwo. Samorząd. Współpraca* (s. 32-44). Wrocław: Wyd. Uniwersytetu Ekonomicznego we Wrocławiu.

Mitura, T. (2016). *Waloryzacja potencjału turystycznego wybranych gmin Pogórza Dynowskiego (walory kulturowe)*. W: J. Krupa (red.), *Problemy ochrony środowiska przyrodniczego i kulturowego Pogórza Dynowskiego w rozwoju turystyki, Dynów*.

Myga-Piątek, U. (2007). *Kryteria i metody oceny krajobrazu kulturowego w procesie planowania przestrzennego na tle obowiązujących procedur prawnych*. *Problemy Ekologii Krajobrazu* 19: 101-111.

Okello, M.M., D'Amour, D.E., Manka, S.G. (2008). *Tourism attractions and satisfaction of Amboseli National Park, Kenya*. *Tourism Analysis* 13: 373-386.

Order No 18/03 of the Opole Governor of 29 January 2003 on the liquidation of the Management Board of Opole Landscape Parks and the establishment of the Complex of Opole Landscape Parks [Zarządzenia Nr 18/03 Wojewody Opolskiego z dnia 29 stycznia 2003 r. w sprawie likwidacji Zarządu Opolskich Parków Krajobrazowych i utworzenia Zespołu Opolskich Parków Krajobrazowych].

Popławski, Ł. (2009). *Uwarunkowania ekorozwoju gmin wiejskich na obszarach chronionych województwa świętokrzyskiego*. Warszawa: PWN.

Powichrowska, B., Demianowicz, A. (2005). *Uwarunkowanie techniczne*. W: B. Poskrobko (red.), *Zarządzanie turystyką na obszarach przyrodniczo cennych* (s. 152-168). Białystok: Wyd. Wyższej Szkoły Ekonomicznej w Białymstoku.

Sołowiej, D. (1987). *Podstawy metodyki oceny środowiska przyrodniczego człowieka*. Poznań: Wyd. UAM.

Statistical Yearbook of Opolskie Voivodeship 2015 [Rocznik Statystyczny Województwa Opolskiego 2015, Urząd Statystyczny w Opolu, Opole].

Warszyńska, J. (1970). *Waloryzacja miejscowości z punktu widzenia atrakcyjności turystycznej – zarys metody*. *Zeszyty Naukowe UJ, Prace Geograficzne* 27: 103-118.

Warszyńska, J. (1974). *Ocena zasobów środowiska naturalnego dla potrzeb turystyki (na przykładzie woj. krakowskiego)*. *Zeszyty Naukowe UJ, Prace Geograficzne* 36.

Zaręba, D. (2000). *Ekoturystyka. Wyzwania i nadzieje*. Warszawa: Wyd. Naukowe PWN.

Ziarkowski, D. (2007). *Problemy oceny walorów i atrakcji kulturowych z punktu widzenia turystyki*. *Folia Turistica* 18: 175-183.

Ziernicka-Wojtaszek, A., Zawora, T. (2011). *Wybrane metody oceny atrakcyjności agroturystycznej terenów wiejskich*. *Infrastruktura i Ekologia Terenów Wiejskich* 2: 235-245.

Ziółkowski, R. (2009). *Funkcje turystyczno-rekreacyjne obszarowej ochrony przyrody w świetle uwarunkowań prawnych*. W: W. Chizniak (red.), *Turystyka i rekreacja na obszarach przyrodniczo cennych w regionach transgranicznych północno-wschodniej Polski* (s. 18-31). Białystok: Oficyna Wydawnicza Politechniki Białostockiej.

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