

UKRAINE'S POTENTIAL FOR ACTIVE TOURISM – AN ATTEMPT AT ANALYSIS

Oleksandr KOLOTUKHA *

Flight Academe of National Aviation University, Department of
Tourism and Air Travel, Kropyvnytskyi, Ukraine, e-mail: okolotuh@ukr.net

Olena MYRHORODSKA

Flight Academe of National Aviation University, Department of
Tourism and Air Travel, Kropyvnytskyi, Ukraine, e-mail: olemyr8@ukr.net

Valentyna PIDHIRNA

Yuriy Fedkovych Chernivtsi National University, Faculty of Geography, Department of Economic
Geography and Environmental Management, Chernivtsi, Ukraine, e-mail: v.n.pidgirna@chnu.edu.ua

Oleksandra CHUBREI

Yuriy Fedkovych Chernivtsi National University, Faculty of Geography, Department of Economic
Geography and Environmental Management, Chernivtsi, Ukraine, e-mail: o.chubrey@chnu.edu.ua

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Abstract: The paper discusses methodological and spatial features of an important segment of the recreational and tourist activities - active sport tourism - in terms of geospatial approach (on the example of Ukraine). Geospatial approach is considered by the author as the most appropriate methodological approach to the study of active sport tourism geography, as active sport tourism resources are represented, first of all, by the territory and some of located objects, primarily natural and infrastructure facilities. These objects play a dual role in sports tourism. Second, these are attractive objects which tourists want to see: beautiful peaks, glaciers, icefalls, lakes, waterfalls etc. These individual sports tourism objects are "thread" on the lines of sports tourism routes that may be considered as the linear forms of sports tourism activity. Each category of route difficulty corresponds to a certain set of local and extensive obstacles by type, number and category of difficulty. The network of sports tourism routes with extremely attractive objects constitutes sports tourism region. Every active sport tourism region has own specialization in one or more types of sports tourism. If active sport tourism region is considered only as recipient of tourist flows, it acts as the active sport tourism region-destination. Regionalization of Ukraine in terms of certain taxonomic levels (zone - region (region-destination) - hub - object) is an important result of human-geographical study of active sport tourism in Ukraine. Seven active sport tourism zones have been identified in Ukraine based on the defined criteria. Each zone contains from 2 to 4 active sport tourism regions. Empirical studies have been conducted in the Carpathian mountainous active sport tourism region (research tourist groups).

Key words: active sport tourism, active sport tourism geography, active sport tourism regionalization, active sport tourism zone, Ukraine, Ukrainian Carpathians

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INTRODUCTION

European Conference of Ministers responsible for Regional Planning at its twelfth session in September 2000 in Hanover adopted the «Guiding Principles for Sustainable Spatial Development of the European Continent» determining spatial development policy, required to achieve social cohesion in Europe (Guiding Principles, 2000). Sustainable spatial development policy should be directed at harmonization of social and economic territorial development with ecological and cultural functions of respective territories (Golubtsov, 2021). Tourism is recognized as an important component of strategic spatial development in Europe, given that the development of tourism is concentrated in the most attractive and the most vulnerable, both ecologically and culturally, areas of Europe (Cooke and Nunes, 2021; Sharafutdinov et al., 2020).

Spatial development policy aims to increase the opportunities generated by the tourism industry (Zakharchenko and Zakharchenko, 2021). This applies in particular to underdeveloped regions. Today's Ukraine represents such a region within the territory of Europe. Therefore, the development of new forms of sustainable tourism in Ukraine should become a priority (Kifyak, 2019; Kolosinska et al., 2018). In general, there is a necessity in thorough understanding of the functioning of ecosystems, estimation of the possible number of tourists, as well as implementing the new control tools for impact assessment (Wondirad et al., 2020). Thus, according to Pidgirna and Filipchuk (2019) "in the future, it is necessary to maintain the forms of soft tourism, which can easily be adapted to local and regional conditions (e.g., ecotourism, in author's opinion – sport tourism) and create vital development opportunities for many regions".

The World Tourism Organization (UNWTO) includes the concept of "sports tourism": "active sports tourism" (this is the type of activity presented in the article), "event sports tourism" and "nostalgic sports tourism" (Law about tourism,

* Corresponding author

2021; UNWTO, 2022). The Kolotukha and Oleksyn (2021) define active sports tourism as "a type of active recreational and tourist activities carried out in the natural environment, and consists in passing tourist sports routes overcoming various obstacles (passes, peaks, rapids, canyons, caves, etc.) by various means of transportation using special technical receptions and equipment ". Active sport tourism is a particular specific form of recreation and tourism activities.

Sports tourism in a number of post-socialist countries (Ukraine, Russia, Belarus, Moldova, Kazakhstan, Kyrgyzstan, Lithuania, etc.) is an official sport. It is included in the sports classifications of these countries with appropriate sports titles and categories (IFST, 2022). The phenomenon of sports tourism in these countries is quite unique. This is not an Olympic sport that has all the official attributes of a sport. These countries are united in the International Federation of Sports Tourism, which includes more than 10 countries. Sports tourism in the economically developed countries of the world is developing at the amateur level and acts as a kind of active, often extreme, recreation. In Europe, the United States, Canada, Australia, New Zealand and others, this type of tourism is similar in content, but not a sport. No sports teams are formed here, no official competitions are held. In this case, we are talking about the so-called adventure, extreme tourism, travel in "wild" natural areas, scout movement and more. In Ukraine active sport tourism at present is developing in two directions: travelling tourism (passage active sport tourism routes) and competitive tourism (training and participation in competitions in sports tourism technique). Therefore, the main forms of active sport tourism activities are tourist travels and tourist competitions. Tourist travel is an event consisting in the human movement in the natural environment by any technical means or without them, alone or in a group, with educational, recreational, sports and other purposes. Travels must take place in accordance with the laws of Ukraine and other state sat which territory the route is mapped. Tourist travels include tourist walks, recreational excursions, and active sport tourism expeditions. However, the main form of tourist travel is sport tourist trip that may be differentiated primarily by the types of tourism – hiking, skiing, mountain, water, cycling, motor tourism, speleological, motorcycle, equestrian and sailing, as well as present their combinations (Kolotukha, 2015; Kolotukha and Kolotukha, 2021). According to organizational forms, sports tourism is divided into: sports hiking, sports tourism competition, expeditions tours. In order of increasing length, duration and technical complexity of tourist and sports routes are divided into I, II, III, IV, V and VI categories of complexity (FSTU, 2022).

The technical complexity of obstacles in active sports tourism is assessed by their category of difficulty. The category of difficulty of the obstacle is determined by the level of qualification, technical skills and physical training required to overcome it safely. There are six categories of difficulty of obstacles - 1A, 1B, 2A, 2B, 3A, 3B.

MATERIALS AND METHODS OF OUR RESEARCH

In tourism geography, which is an essential component of social geography, in the middle of the twentieth century there was a need for a solid methodological foundation that would have combined different scientific approaches into a general concept. Under active sport tourism research as a complex and socially significant trend of recreational tourism, the authors use a multifaceted simultaneous analysis of the study object, taking into account geosystemic, cluster and geospatial paradigms and a number of provisions of modern theoretical and methodological interdisciplinary models for tourism research (Kolotukha, 2015; Kolotukha and Kolotukha, 2021). In addition, it was taken into consideration that in tourism geography has developed a powerful resource approach, according to which the primacy of resources (especially natural and recreational) is noted as a determining factor in the development of tourism in certain areas (Rudenko et al., 2019; Sharafutdinov et al., 2020). The combination of resources determines the level of attractiveness of certain areas for the development of active sports tourism, affects the formation of demand and tourist consumption. Within study of geospatial organization of sports tourism as the main methodological approach of the study it offers a spatial resource approach, the essence of which is to apply for geospatial approach principles on tourism research, which elaborates the resource approach, as resources are thought to be a property of the territory. The resource in sports tourism is the geotory of sports tourism, which includes the aquatory part, part of air area and the accessible part of ground, some, primarily natural, objects, as well as an existing infrastructure (Kifyak, 2019; Wanyonyi, 2021). These individual tourist and sports facilities (obstacles, attractive facilities) are "strung" on the line of tourist and sports routes. Each category of route complexity corresponds to a certain set of local and long-distance obstacles in terms of a type, number and category of difficulty. The network of tourist and sports routes forms a certain tourist and sports destination (Kolotukha, 2015; Kolotukha and Kolotukha, 2021).

Active sports tourism uses basically the same resources as sports and health, but in contrast to the last one, it is particularly attractive for not a favorable and comfortable aspects of these resources, but those which are close to extreme, on the verge of overcoming them (for a particular person), tourists groups) or close to it. Therefore, it can be argued that such a set of resources should be allocated to a separate category – that are of sports, recreational and tourist resources (Kolotukha, 2006; Fedorchenko, 2020). An important result of the research on active sport tourism system in Ukraine was the conduction of tourist and sports zoning of country territory in accordance with the proposed taxonomic levels. At the same time, the method of social-geographical zoning is a powerful method of scientific analysis and synthesis of complex phenomena and systems, which is active sports tourism; it is a complex process of spatial organization of information, a kind of geographical taxonomy, which allows getting deeper understanding of the studied phenomena location and their territorial organization in general.

RESULTS AND DISCUSSION

An important result of socio-geographical research is the taxonomic classification of territorial tourist and sports entities and the development of schemes of tourist and sports zoning of Ukraine. The following taxonomic classification for territorial sports tourism entities may be proposed: geographical space – tourism space – active sport tourism space – active sport tourism zone – active sport tourism region (active sport tourism region-destination) – active sport tourism hub – active sport tourism object (Figure 1).

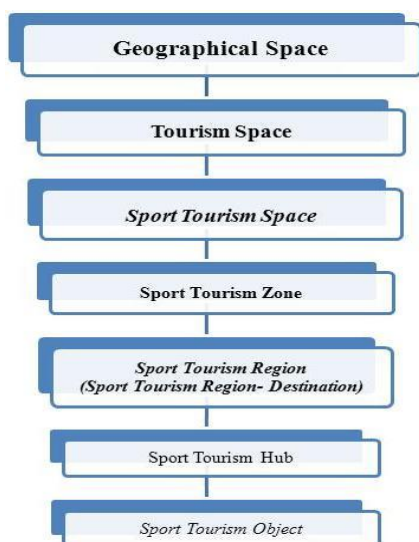


Figure 1. Taxonomic classification of territorial active sport tourism entities (Source: authors' own research based on Kolotukha and Kolotukha, 2021)

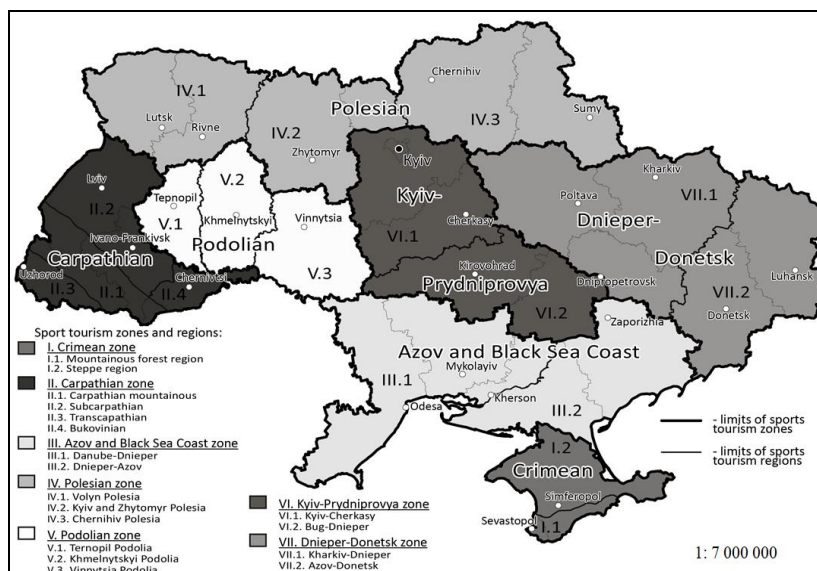


Figure 2. Active sport tourism regionalization in Ukraine (Source: authors' own research based on UNWTO, 2022; Kolotukha and Kolotukha, 2021)

Active sport tourism regionalization in Ukraine.

Some empirical researches have been carried out to confirm the geospatial concept of active sport tourism sustainable development. Active sport tourism space includes all Ukrainian territory without exceptions, because in any location one can make at least the easiest hiking or cycling trip in the summer and skiing in winter. For further structuring of the active sport tourism space in Ukraine we developed the scheme of sport-tourism zoning and regionalization of Ukraine taking into account the complexity of certain types of tourism routes and dates of the tourist trips. The basic typological features of sports tourism zones in Ukraine are shown in Table 1. Scores, reflecting the amount of active sport tourism resources, correspond to the difficulty of active sport tourism routes, available in defined active sport tourism zones. Categories of difficulty in certain tourism types, predicted by the author, are indicated in parentheses.

On the basis of afore mentioned criteria the territory of Ukraine was divided into 7 sports tourism zones (Figure 2):

- Carpathian**: Zakarpattia, Lviv, Ivano-Frankivsk, and Chernivtsi oblasts;
- Crimean**: Autonomous Republic of Crimea and the city of Sevastopol;
- Azov and Black Sea Coast**: Mykolaiv, Odessa, Kherson, and Zaporizhia oblasts;
- Polesian**: Volyn, Rivne, Zhytomyr, Chernihiv, Sumy oblasts and the northern part of Kyiv region;
- Podolian**: Khmelnytskyi, Ternopil, and Vinnytsia oblasts;
- Kyiv-Prydniprovyia**: the southern part of Kyiv oblast from the city of Kyiv, Cherkasy, Kirovohrad oblasts and the right bank of Dnipropetrovsk region
- Dnieper-Donetsk**: Kharkiv, Poltava, Donetsk, Luhansk oblasts and the left bank of Dnipropetrovsk region.

Table 1. The basic typological features of active sport tourism zones in Ukraine (Completed by authors on the basis of information from the IFST, 2022; FSTU, 2020)

№	Active sport tourism zone	Administrative units (oblasts, unless noted otherwise)	Area (% of the country)	Amount of sports tourism resources									Total score
				hiking	skiing	Mountain-eering	water	cycling	biking	speleological	sailing	alpinism, climbing**	
1.	Crimean	Autonomous Republic of Crimea, the city of Sevastopol	4.4	3 (4)*	2	2 (3)	- (1)	5	2	4 (5)	5	2 (5)	25 (32)
2.	Carpathian	Lviv, Ivano-Frankivsk, Zakarpattia, Chernivtsi	9.4	3 (4)	4 (5)	2 (3)	4	5	5	2	- (1)	2	27 (31)
3.	Azov and Black Sea Coast	Odessa, Mykolaiv, Kherson, Zaporizhia	18.8	1	1	-	2 (3)	2	2	1	5	-	14 (15)
4.	Polesian	Volyn, Rivne, Zhytomyr, Chernihiv, Sumy, Kyiv (northern part)	21.8	2	2	-	2	3	2	-	1	-	12
5.	Podolian	Vinnytsia, Khmelnytskyi, Ternopil	10.1	1	1	-	2	3	2	4	-	-	13
6.	Kyiv-Prydniprovyia	Kyiv (southern part), Cherkasy, Kirovohrad, Dnipropetrovsk (right bank)	15.8	1	1	-	3	2	2	-	1	-	10
7.	Dnieper-Donetsk	Dnipropetrovsk (left bank), Kharkiv, Poltava, Donetsk, Luhansk	19.7	1	1	-	1	2	2	-	3	-	10

* - n parentheses indicated the predicted by the authors of increasing the categories of difficulty in certain types of tourism and climbing in contrast to those officially established by the Federation of Sports Tourism of Ukraine

** - score assessment of tourist and sports resources for mountaineering and climbing performed by the authors

Table 1 presents the author's concept of diagnosing the potential of active sports tourism - a score of the degree of tourism and sports resources. It corresponds to the categories of complexity of tourist and sports routes that can be carried out in certain tourist and sports regions. In parentheses - predicted by the authors of the categories of complexity of certain types of tourism and climbing after their reassessment. Crimean active sport tourism zone occupies only the territory of Crimean Peninsula. Despite the small area, Crimean sports tourism zone has very high total score (Table 1). There are opportunities for the development of almost all types of active sport tourism (except the water tourism). Cycling and sailing routes have V category of difficulty. Crimean specialists in speleotourism has estimated that speleological route, passing through Crimean caves, also has V category. Based on the requirements that are imposed on the duration and length of water trips, the North Crimean Canal and its branches can serve as water route I of category. Crimean active sport tourism zone may be divided into 2 active sport tourism regions: mountainous forest region (covering 3 ridge of Crimean mountains) and Steppe region (covering the northern plains of the Crimea and the Kerch Peninsula). *Carpathian active sport tourism zone* covers large East Carpathian Mountain country and the surrounding area within Lviv, Zakarpattia, Ivano-Frankivsk and Chernivtsi oblasts. Carpathian active sport tourism zone also has very high total score (Table 1). There are opportunities for the development of almost all types of sports tourism. Routes for cycling and biking have V category of difficulty. Categories for hiking and mountaineering routes may be up to IV and III, respectively. The surface area of Dniester water reservoir in Chernivtsi oblast, in author's opinion, deserves I category as the place for sailing tourism. Carpathian active sport tourism zone can be subdivided into 4 active sport tourism regions: Carpathian mountainous (covering all mountain ranges within Ukrainian Carpathians), Subcarpathian (covering the plains and foothills regions of Lviv and Ivano-Frankivsk oblasts), Transcarpathian (covering the plains and foothills regions in Zakarpattia oblast) and Bukovinian (covering the plains and foothills in Chernivtsi oblast).

Azov and Black Sea Coast active sport tourism zone occupies the southern lands of Ukraine. Despite large area, total score is twice less than in the previous two zones (Table 1). Only sailing routes deserve V category of difficulty. III category was assigned to the water kayaking route on the Southern Bug River, which begins in the Kirovohrad oblast and ends in Vosnesensk in Mykolaiv oblast. Routes of the other tourism types have I-II categories of difficulty, and the possibilities for mountain kinds of tourism are completely absent. There are 3 caves classified as I category.

Azov and Black Sea Coast active sport tourism zone can be subdivided into 2 active sport tourism regions: Danube-Dnieper (covering Odessa, Mykolaiv and Kherson oblast of the right bank Ukraine) and Dnieper-Azov (left bank parts of Zaporizhia and Kherson oblasts). *Polesian active sport tourism zone* encloses the northern regions of Ukraine. Geographically, it coincides with the landscape zone of mixed forests. The total score is relatively low (Table 1). Woodlands, wetlands, off-road areas and difficulties in orientation are the main extended obstacles in hiking (II category), skiing (II category), biking (II category) and cycling (III category). River Sluch is the base for water kayaking route, having II category of difficulty. The Lakes of Shatsk are suitable for sailing tourism. Of course, mountain and speleological tourism in the region are not represented at all. It is worth mentioning that almost all Kyiv Polesia and parts of Zhytomyr, Chernihiv and Volyn Polesia are located in the zone of radioactive contamination after the Chernobyl disaster and have been excluded from recreational and tourist use. Polesian active sport tourism zone can be subdivided into 3 active sport tourism regions: Volyn Polesia (Volyn and Rivne oblasts), Kyiv and Zhytomyr Polesia (Zhytomyr oblast and the north of Kyiv oblast) and Chernihiv Polesia (Chernihiv and Sumy oblast). *Podolian active sport tourism zone* includes the territory of Ternopil, Khmelnytskyi and Vinnytsia oblasts. This zone almost coincides with the Podolian Upland. The total score also is relatively low (Table 1) Speleological tourist resources with maximal IV category of difficulty constitute the landmark of this zone. The slopes of Podolian Upland may be the place for cycling (III category) and biking (II category) routes. Podolian rivers – Southern Bug River from Medzhybizh to Hayvoron, Smotrych River and Zbruch River – have II category of difficulty. Hiking and skiing routes have only I category. Mountain and sailing routes are not available.

Podolian active sport tourism zone can be subdivided into 3 active sport tourism regions: Ternopil Podolia (within Ternopil oblast), Khmelnytskyi Podolia (within Khmelnytskyi oblast) and Vinnytsia Podolia (within Vinnytsia oblast).

Kyiv-Prydniprovyia active sport tourism zone includes the central regions of Ukraine. Much of the area (south-west of Kiev oblast, Cherkasy and Kirovohrad oblasts, and right bank Dnipropetrovsk oblast) is located within the Ukrainian shield and the slopes of Dnieper Upland. The terrain is characterized by various erosion and fluvio-glacial landforms. The total score is low (Table 1). Water kayaking route with III category of difficulty passes through the southern-west part of the zone, and II category of difficulty has been assigned to rivers cutting through the crystalline rocks of the Ukrainian Shield: Ros, Hirskiy Tikych, and Syniukha. The slopes of Dnieper Upland may be the place for cycling and biking routes (II category). Water area of the Dnieper reservoirs, mainly - Kremenchuk, may be the place for sailing trips (I category). Hiking and skiing routes have I category of difficulty. Mountain and speleological routes are not available at all.

Kyiv-Prydniprovyia active sport tourism zone can be subdivided into 2 active sport tourism regions: Kyiv-Cherkasy region (southern part of Kyiv oblast and Cherkasy oblast) and Bug-Dnieper region (Kirovohrad oblasts and right bank Dnipropetrovsk oblast). *Dnieper-Donetsk active sport tourism zone* is situated in eastern Ukraine. The zone covers territories, characterized by the highest human-induced load in Ukraine. Consequently, the total score is low (Table 1). Sailing routes in Krasnooskil reservoir and Azov Sea have III category. The slopes of Donetsk Upland may be the place for bicycle and moto-routes (II category of difficulty). Hiking, water and skiing routes may have only I category of difficulty. Mountain and speleological routes are not available. Dnieper-Donetsk active sport tourism zone may be subdivided into 2 active sport tourism regions: Kharkiv-Dnieper region (Kharkiv, Poltava and left bank Dnipropetrovsk oblast) and Azov-Donetsk region (Donetsk and Luhansk oblasts).

Carpathian mountainous active sport tourism region: detailed study

The study of lower taxonomic levels, i.e. active sport tourism hubs and object, has been conducted at the example of one of the most interesting, in our opinion, active sport tourism region – Carpathian mountainous. This mountainous region

was deliberately chosen for detailed study. Indeed, according to the previously mentioned «Guiding Principles for Sustainable Spatial Development of the European Continent», European mountain regions have exceptional potential, but require support and promotion of initiatives that contribute to the development of high-quality tourism and take into account the natural, economic, social and cultural environment. Carpathian mountainous active sport tourism region, without a doubt, functions as a active sport tourism region-destination because of high potential for development of most types of active sport tourism (Table 1) and attracts sport tourists not only from Ukraine but also from Central and Eastern Europe, Russia, the Baltic States, etc (every third tourist group met by the authors of the study on the routes represents the above-mentioned areas of Europe). It should be noted that the Carpathian region includes areas that often do not have even the basic tourist infrastructure (accommodation, lifts, etc.), poorly paved and marked tourist routes, sparsely populated.

The author divided the Carpathian mountainous active sport tourism region into 4 active sport tourism hubs corresponding to the following mountain ranges: Chornohora, Svydovets, Maramuresh and Gorgany.

Ukrainian Carpathians combine obstacles typical for mountain and forest areas, and have very attractive scenery. Rapid rivers, mountain lakes, slope mountains, green meadows, unique architecture of Carpathian villages and rich history of the region meet cognitive tastes of tourists. Ukrainian Carpathians include areas with significant differences of heights, rocky terrain, water obstacles, and difficult spatial orientation. Mountain system of Ukrainian Carpathians extends over a distance of almost 280 km and has a width of over 100 km. Carpathians belong to medium-high mountains that do not reach the snowline and have no modern glaciers. The vast majority of the peaks are below 2000 m and only Chornohora, most of which belong to the main watershed, has six peaks with altitude higher than 2000 m, including the highest peak of the Ukrainian Carpathians – Goverla (2061 m). The snow line in the era of the last glaciation was located at an altitude of 1450-1550 m. Bright traces of ancient glaciations are glacial relict forms at the highest mountain ranges (Chornohora, Polonynskyi range, Rakhiv range, Chyvchyny) – cirques, basins, alluvial fans, moraine ramparts. Cirque lakes lay at the bottom of cirques at the altitude of 1450-1800 m. Relict glacial cirques at opposite Chornohora slopes have not joined to each other with their back wall and so have not created sharp ridges, as it happens in the high alpine terrain. Sharp ridges, sometimes with cornices, occur only in the spurs of Vododilnyi Range, where certain neighbouring cirques of the same slope brought together. Mountain ranges of the Carpathians are separated by longitudinal valleys and differentiated by deep transverse valleys that extend from northwest to southeast. Longitudinal zonation somewhere is complicated by ring-shaped structures. Carpathian mountainous sports tourism region has high potential for the development of hiking, mountaineering, skiing, cycling, biking, and water tourism. Hiking in the Carpathians can be carried out from May to October. However, one must remember that the highlands have a lot of snow in May, and in October the temperature significantly reduces, especially at night. The most interesting routes pass by the mountain ranges. Thus, to date the most difficult hiking route of III category passes over ranges Chornohora, Svydovets and Gorgany. While organizing hiking trips in Carpathians in winter one should remember that in this season local natural conditions correspond to the more difficult active sport tourism regions. During this period, some parts of tourist routes (passes, peaks) may have higher category of difficulty than usually and require appropriate reassessment. Winter hiking has its own peculiarities, which in some cases make such trips more complex and dangerous than summer hiking in highlands (winter snow is very different from the summer highland snow). Particular attention in the winter and early spring should be given to the study places hazardous in respect of avalanches and mudflow. Despite the proximity of settlements should be borne in mind that situation, when tourist group are walking at the mountain range, is quite similar to being tens of kilometres from housing.

In Carpathians active sport tourism object are represented, first of all, by the local obstacles. To pass local obstacles, tourist need to have appropriate level of technical skills and usually must use special equipment. The most common local obstacles for hiking tourist in Carpathians are water crossing, canyon, traverse, pass, and peak. Roots of each category of difficulty should have a certain set of local obstacles by type, number and difficulty. Most difficult *water crossings* within the III category routes have 1B category of difficulty and are situated only in the upper reaches of Carpathian rivers, such as Prut, Chorny Cheremosh, Bilyi Cheremosh, Dniester and their tributaries. However, we can speak of a certain “artificiality” of these obstacles, because in almost every corner of the Carpathians one can plan a route so as to overcome water obstacles using bridges. But worsening weather conditions (heavy rains, long rains, etc.) may cause a situation in which the difficulty of the water obstacles could significantly increase. Therefore, tourist groups planning routes in the Carpathians should be prepared to cope with medium and even challenging water obstacles. *Mountain passes* in the Ukrainian Carpathians has low difficulty, maximum 1A category, for example, the pass between the peaks of Syvulia. In our opinion, the list of estimated passes will be complemented. *Mountain peaks* are traditionally included as local obstacles in the hiking routes in the mountainous areas, including the Ukrainian Carpathians. In winter 1B category of difficulty may be assigned to the peaks of Chornohora range: Petros (2020 m) and Goverla (2061 m). In the author's opinion, 1B category should be assigned to Maramuresh peaks: Pip Ivan Marmaroskyi (1937 m) and Petris (1780 m). A number Carpathian peaks may be evaluated as 1A category, among them: Strymba (1719 m), Popadia (1740 m), Bratkovska (1778 m), Dovbushanka (1754 m), Pip Ivan Chornogorskyi (2020 m), Gutyn Tomnatyk (2035 m), Dogiaska (1761 m) and Syvulia (1818 m).

Traverses of mountain ridges are also traditional local obstacles at hiking routes in mountainous areas. Maximum category of difficulty for route traverses at the territory of Ukraine – 1A. It can be grassy or scree slopes, or easy rocks, where personal fall-arrest system is needed, the slope along the ridge should have inclination 20-25 degrees and length at least 2 km. Such requirements are met by most ranges of Ukrainian Carpathians – Chornohora, Svydovets, Maramuresh, Krasna, Borzhava, Polonyna Runa, Gorgany etc.

Canyons and canyon areas as local obstacles are specific to certain areas of the Ukrainian Carpathians.

Extensive obstacles represent conventionally isolated kind of obstacles that are primarily characterized by their extension and amount of physical vigour needed to overcome them. Hiking routes pass through following main kinds of extensive

obstacles: vegetation (from easily traversable forest to creeping), wetlands (moors, swamps), scree and moraine, ice and snow areas. Roots of each category of difficulty should have a certain set of extensive obstacles by type, difficulty and length.

Vegetation is typical extensive obstacle in the Ukrainian Carpathians. Hardly traversable forests of 2A category encounter most of all on Gorgany range. A major obstacle to the movement is crooked forests of dwarf mountain pine, which grows above the forest zone, creates dense thickets up to 3 m and creeps along the ground.

Moors as extensive obstacles occur occasionally in the Carpathians. These are high altitude moors, for example, Zarosliak at the foot of Bretskul Mountain, Vysiache at Polonynskiy range. There are raised moors in the upper Dniester basin (Great Dniester Moors) and on river terraces of Limnytsia River (Ivano-Frankivsk oblast).

Scree and moraines are typical extensive obstacles in the Ukrainian Carpathians. They took shape due to gravitational processes and Pleistocene glaciations, resulting in screes, boulder grounds, stone run at the slopes of highest Carpathian ranges: Chornohora, Svydovets, Gorgany etc., and bottom and side moraine of the former glaciers. Lateral moraine strands 1-2 km in length and up to 60 m, consisting of large (up to 2 m) blocks of sandstone, occur at Chornohora.

Overcoming *snow areas* (1A category of difficulty) during hiking trips is possible only in the off-season when snowpack 0.5-0.6 m or more may still be stored in the mountains. Areas with shallow snow cover may preserve in Carpathians until early July. In the Carpathians, the most interesting ski routes pass over the mountain ranges. Choosing such traverse route is necessary to remember that the beginning of the route usually fall on rapid ascent on the ridge through the forest followed by the movement through partially or fully open subalpine meadows. Natural obstacles encountered in the Carpathian Mountains (deep powdery snow, avalanche danger on the slopes, strong wind, solid crust or ice, sudden weather changes on the spine) determine specific requirements for tourists-skiers, who are going to conduct sport trips there. Groups that carry out trips of II category and higher should be ready for overnight stays on the ridge (subalpine meadows) above the forest zone, and so to be able to put up a tent in strong winds, build protective walls of snow, dig caves. It must be borne in mind that despite the proximity of the settlements, tourist group at the mountain range during bad winter weatherise in conditions not much different from the situation when it is tens of kilometres from housing, as the descent into the valley may be very dangerous, and the weather conditions of the spine may be as severe as in the Arctic. In order to avoid injuries during the trip, particular attention should be paid to the study of avalanche sites in respective area. In the Carpathians avalanche activity appears annually. The intensity of avalanches may be explained by a high variability of weather conditions during the cold season and intensity of snow accumulation (up to 100 cm at altitudes 500-1400 m above sea level and 300 cm at higher altitudes). The most dangerous ranges are Chornohora, Svydovets and Gorgany due to asymmetric slopes (steep north-eastern slopes, gentle south-western slopes): at the north east macro slope avalanche period lasts longer. The greatest number of avalanches comes down in February and March, and the duration of the avalanche season increases with altitude (Ushakov et al., 2020). Water tourism is the most technically complicated type of tourism. The main means for rafting, used in water tourism, are canoes, kayaks, catamarans, rafts (wooden and inflatable) and inflatable boats (rafts). Category of difficulty for each water route depends on number of local water obstacles. *Water obstacles* are combinations of factors that may change the trajectory of the vessel in the water flow. The motion of vessel is affected, first of all, by the heterogeneity of the flow associated with the irregularities of the bottom, banks, large-scale stone and bedrock exposures in the channel. The most common water obstacles in tourist classification are thresholds and their cascades.

Rapids rocky section of the river bed with a steep channel inclination and high speed of water flow. Rapids occur in places of stepped channel bed, where its material is heterogeneous and thus bedrock, rock debris, large rocks clutter the river flow. Rapids have relatively small length - up to several hundred meters. Areas above and below the rapid have smaller slope inclination and flow velocity. Every rapid has one or several culminating places of water fall. Several closely consequent rapids form a *cascade*. Here are some examples of rapids on Ukrainian rivers: Yamnianskyi Prolom and Prykarpatskyi rapid on Prut, Verkhnia Dzembronia and Nyzhnia Dzembronia, Verkhniy and Nyzhniy Huk on Chornyi Cheremosh, Dudky and Voritsia on Bilyi Cheremosh etc.

Mountain rivers of the Carpathian region are well familiar to the tourists: among them are rivers of Dniester basin (Chornyi Cheremosh, Bilyi Cheremosh, Cheremosh, Prut, Stryi) and also Tysa with tributaries (Rika, Latorica). They are recently complemented by a number of small rivers – tributaries of Cheremosh (Probiyna, Bystrets), Stryi, and upper Prut. This became possible with the development of a relatively new kayaking technique.

Carpathian mountain rivers are characterized by powerful stream, rapid flow up to 10-15 km/h, mighty rapids and extensive riffles. Average channel inclination in upper reaches is 10 m/km (Pрут, Bilyi Cheremosh). Rivers feed mainly from atmospheric waters; there are typical and flooding during spring snowmelt and rainfall floods. Prolonged or heavy rains can cause flooding at any time of the year. The water level during the rafting season varies considerable and depends on the amount of snow in the mountains, temperature and intensity of rains. The best time to undergo Carpathian rivers is a period from last decade of April until the first decade of May, during the floods, when snow melting is most intense. This applies, above all, to the Prut River and small tributaries, which are generally suitable for passing only a few spring days. However, rafting on Cheremosh and Tysa is possible during throughout the whole warm season from April to October. Water tourism on the Carpathians rivers is possible using canoes, kayaks, catamarans, and rafts. Depending on the season and type of vessel routes along the rivers of the Carpathians have IV category with the elements of V category. Considering the nature of obstacles, their categories are somewhat underestimated, but this issue requires further research and evaluation. Carpathian rivers can be a great offseason training ground for the routes of the highest complexity in other regions of the world. Routes along the rivers of Prut and Cheremosh may be recommended only for groups having experience of trips along rivers with many rapids not less than III category. These groups must have the skills in rowing, pulling off and mooring to the riverside, mutual interacting in rough water, and rescuing. Rafting through the Yamnianskyi Prolom and Prykarpatskyi rapid on Prut and similar rapids may be recommended only for groups having experience of participation in water trips of IV category, and passing waterfall Probiy (water drop over 8 m) is desirable to carry out only in case of accessible insurance from rescue

services. Bicycle and motorcycle tourism has high potential for development in the Carpathian mountain region. Nowadays it is possible to conduct in Carpathians bicycle and motorcycle tourist trips of up to and including V category. High category bicycle trips are carried out predominantly in the mountainous regions of the Carpathians and require from cyclist appropriate physical training, skills in orientation and overcoming natural obstacles. Carpathians cycling and motorcycling routes of III, IV and V category usually include hardly passable stages represented by field and forest natural soil roads, steep mountain trails, passes, long climbs and descents, fords and other natural obstacles, and also roads with topping uncomfortable for bicycle (paving, large gravel, etc.). At the same time, this region has a dense net of motor roads and settlements.

CONCLUSION

Thus, we believe that *active sport tourism* is a type of active recreation and tourism activities, carried out in natural environment and consists in passing sports tourist routes overcoming various natural obstacles (passes, peaks, rapids, canyons, caves, wetlands, etc.) using different means of transport as well as special techniques and equipment.

The authors in the study of the geospatial organization of active sports tourism, as the main methodological approach to the study proposes a spatial resource approach. Its essence is to apply the principles of geospatial approach to the study of tourism, which complements the resource approach, as resources are a property of the territory. The resource in sports tourism is the geotopia of sports tourism. Geotopia unites the territory, part of the water area, part of the aero area and the accessible part of the littoraria, their individual objects (primarily natural), as well as the existing infrastructure.

Regionalization of Ukraine in terms of certain taxonomic levels (zone - region (region-destination) - hub - object) is an important result of human-geographical study of active sport tourism in Ukraine. Seven active sport tourism zones have been identified in Ukraine based on the defined criteria. Each zone contains from 2 to 4 active sport tourism regions. In Ukraine, Crimean mountainous forest region and Carpathian mountainous region should be considered as active sport tourism regions-destinations. More detailed taxonomic classification at the level of active sport tourism hubs and objects has been conducted on the example of Carpathian mountainous region-destination, containing 4 active sport tourism hubs with active sport tourism objects suitable for different types of active sport tourism.

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