Kilinskaya K., Yavorskaya V., Lopushnyak L. Road landscapes - recreation and tourism sphere segment (on the example of Chernivtsi city). Journal of Education, Health and Sport. 2020;10(3):219-229. eISSN 2391-8306. DOI http://dx.doi.org/10.12775/JEHS.2020.10.03.024
https://apcz.umk.pl/czasopisma/index.php/JEHS/article/view/JEHS.2020.10.03.024
https://zenodo.org/record/3822617

The journal has had 5 points in Ministry of Science and Higher Education parametric evaluation. § 8. 2) and § 12. 1. 2) 22.02.2019.

Received: 09.03.2020. Revised: 18.03.2020. Accepted: 31.03.2020.

ROAD LANDSCAPES - RECREATION AND TOURISM SPHERE SEGMENT (ON THE EXAMPLE OF CHERNIVTSI CITY)

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Abstract

The presented publication analyzes Chernivtsi city road landscapes, reveals the natural conditions of their formation and functioning, investigates the network of city and residential streets, characterizes groups of roads that are used in the city recreational and tourist sphere and can potentially be included in tourist routes.

Keywords: road landscapes; roads; recreational and tourist sphere; recreational and tourist activity.

Formulation of the problem. The issue of RL in modern recreational geography is the new area of research, which simultaneously forms a modern theory of recreational and tourist nature management and recreational and anthropogenic landscapes. On their further development and condition features depend the recreational and tourism sphere, human employment, the solution of environmental and ecological problems. Research on RL (hereinafter referred to as

RL) is of particular importance in connection with current international socio-economic processes in the Ukraine, in particular the integration of international networks of the Ukraine and Western Europe, the construction of trans-European transport corridors beginning. The latter pass through Chernivtsi territory, which is a special kind of recreational and tourist core for tourists and recreants of the Ukraine, Romania, Poland, Slovakia and other European countries. Therefore, the purpose of this publication is to analyze and summarize the existing theoretical foundations of the structural organization of RL and to characterize them in accordance with socio-geographical trends.

Analysis of existing researches and publications. For the first time F. Milkov (1973), began to deal with RL questions, who distinguished them into a separate class of anthropogenic landscapes [9]. According to him, RL is a complex system of anthropogenic (technogenic) origin, which structure and operation nature are determined by roads and numerous adjacent infrastructure objects (engineering structures, service points, forest strips, etc.). Among domestic scientists, G. Denysik (2005) is engaged in this issue. [5]. The scientist believes that they are a separate anthropogenic landscapes type, which is formed and functions in construction and active exploitation by humans process, from time to time reorganized (expanded, straightened, improved). The peculiarity of RL is that it functions after its operation cared for is discontinued, and develops according to natural laws as a normal anthropogenic complex.

Together with G. Denysik the RL research was conducted by O. Valchuk (2005), who proposed to include in the RL roads - a separate engineering landscape element of the zonal and azonal character [5]. The road is the base, the pivot, the main axis of the RL. The synonym for this term is a track, a manicure, a millet, a path, a sidewalk, a highway, a route, a motorway and so on. In modern dictionaries, the road understands as the strip of land for travel and walk. The road is regarded as the landscape anthropogenic element, but for the most part it is presented as the terrain anthropogenic element (O. Valchuk, 2005).

The issues of the RL impact on the environment, the allocation of roadside ecological strips were addressed by G. Hodan (2000, 2005, 2010), who investigated the RL impact on surrounding areas and their ecological situation.

Regarding the RL study for the development of the recreational and tourist sphere - in the publications they are considered as infrastructure recreational and tourist resources segment (K. Kilinskaya, 2019), an element of international tourism development (V. Kostashuk, 2007).

Formulating the purpose of the article. These scientific developments have become the basis for a common understanding of the need to clarify the question: how the RL can become one of the main tourism development drivers? Having the theoretical and methodological

experience of the above-mentioned scientists, and the significant data bank about the Chernivtsi RL, we propose to consider them from the point of view of recreational and tourist attractiveness, to some extent - their advertising that might be of interest for the tourists. Priority in this context of the issues under study are the following RL provisions: 1) it is a product of age-old human activity, which not only matters for all economic spheres, but integrates them, forms a single frame of the anthropogenic landscape (especially urban); 2) are characterized by a linear configuration in space; 3) among anthropogenic - the only one where the decisive importance in the functioning has the movement (transport, pedestrian); 4) in the modern landscapes structure will, over time, take priority; 5) one of the main factors of the recreational and tourist sphere functioning, as on its territory historicaly where formed monuments of history, architecture, town-planning, sacral and cultural sites, etc..

Presenting the main material. RL are historically created complexes that are forming for the population and those that are laid by the person depending on the forms of relief, water bodies, vegetation, other natural factors [1, 3]. The concept of RL includes infrastructure components which are located on both sides of the road. Road and road landscape are two different but closely related concepts that depend on the natural conditions of a particular area. To confirm this thesis, we propose a physical-geographical analysis of the area under study – Chernivtsi City, which will become one of the understanding factors of the complex road structural and systematic organization of the environment. According to the territorial-administrative division of Chernivtsi City it consists of Sadgirskyi (occupies the territory of floodplain and low terraced complexes on the left bank of the Prut River), Pershotravnevyi and Shevchenkivskyi districts, which are historically separated by the Golovna Street (complex of medium, high terraces and watershed).

The Chernivtsi City is located in the foothills of the Ukrainian Carpathians, on the slopes of the Prut River valley. In structural terms, it is the region of two tectonic structures connection - the Eastern European Ancient Precambrian Crystalline Platform (southwestern outskirts) and the Precarpathian Neogene Trough (outer zone) of alpine orogenesis. The crystalline foundation of the platform near Chernivtsi City approaches the Herzinic foundation of the Carpathian folded region. The northern part of the city is located at the edge of the Volyn-Podilskyi Plate (Eastern European Platform), the southern part - within the deflection on the platform foundation. The boundary manifestation of these two structures on the surface is complicated by Neogene layers [5].

The geomorphological structure of the city territory is complicated and represented by a complex of erosion-reservoir terraces of the Prut River, valleys of the Prut River tributaries, hollow-wavy watershed plateaus and hilly-ridge watersheds of the Tsetzino height.

The main part of the city is located on the six basement terraces on the right bank of the Prut Valley. The fifth and fourth terraces (relative heights of 80-100 and 120-150 m respectively) occupy about 50% of the territory (city center, towns of Rogatka and Kalichanka). The sixth terrace, with a height of 60 m, forms steep slopes, contouring the right-bank part of the city from the north; the third, in the form of narrow dashed lanes, has a height of 15-25 m. The low first and second terraces (3-4 and 5-8 m) extend over a wide strip (100-200 m) along the River Prut and in the area of the central railway station. (second floodplain terrace) reaches a width of 1 km.

The natural terrain of the city is radically altered. The reason is the construction, cutting of roads, industrial and agricultural nature usage. Because of this, the lithogenic base of the landscape changes. Therefore, this territory is characterized by various anthropogenic forms of relief. For the most part, due to the slopes slopes excessive loading, man-made landslides are observed. In the Chernivtsi City streets, especially in its central historical part, there is a large number of deformations, small dips, subsidence pits, landslides, etc. Sufosial, subsidence and erosion processes play a significant role in micro relief formation, besides the technogenic factor. Anthropogenic landforms also include: created dams, canals, road and railway embankments. The main changes in the natural relief due to anthropogenic influence are: the leveling of the surface, the decrease of the height amplitude, the gradual erosion of geomorphological boundaries on the surface, the disappearance of natural micro relief, the appearance of anthropogenic forms of micro and mesorelief.

Due to the radiation conditions and the atmospheric circulation regime, the city is characterized by a temperate continental climate. Summer is warm, humid, winter is moderately cold, spring is long, autumn is much warmer than spring. Climatic features are marked by the frequent spread over the area of humid and warm Atlantic air brought by the northwest winds. In winter, these masses bring warmth; in summer humidity, transforming into continental air masses of moderate latitudes. Less than the northwestern air masses come here the eastern air masses brought by the southeast winds. Arctic and tropical air masses play a secondary role, with the exception of the spring season, when freezing frost occurs with the invasion of the Arctic masses. The formation of weather depends on the features of cyclonic and anticyclone activity with the advantage of anticyclone regime.

Relief is of great importance in climate formation, which causes the general cooling and rainfall increasing in the southwest, that is associated with the increase of surface height. Pronounced elements such as Khotynskyi and Chernivtsi-Storozhinets hills serve as barriers to the prevailing winds.

The climate characteristic by individual elements is based on long-term observations of the Chernivtsi Hydrometeorological Center, the Meteorological station of Chernivtsi National University named after Yuriy Fedkovych (Chernivtsi), as well as agrometeoposts and hydrometeoposts located on the territory of the urban and suburban zones. According to multivariate data, the average annual temperature is 7,8° C. The warmest month is July with an average temperature of 19,3° C, the coldest month is January with an average temperature of -5,0° C. The maximum temperature is + 43,5° C, the minimum reaches 32° C below zero. The average maximum is + 25,6° C, the average minimum is 25° C. The average freezing depth of the soil in winter is 33 cm. The maximum freezing depth is 65 cm. The average none freezing period in the north of the city is 160 days, in the center 160-165 days, in the south 155 days, in the east 170 days. It is also one of the factors that directly affects the structure of the RL. The city mode of humidification is caused by circulation factors. Wet air from the Atlantic Ocean gives the local climate featyres of enough moisture one, during periods of prolonged heavy rainfall - excessively humid.

Regarding precipitation, in the southwestern part of the city the total rainfall is 740 mm, in the north direction it decreases to 600 mm, in the southern part it reaches 550 mm. Most precipitation falls in summer (maximum falls in June-July), lowest in winter (maximum falls in February).

The hydrographic network of the city is formed by the Prut River and its main influences: the right - the Klokuchka and Molnitsya rivers, the left - the Shubranets river. The southern part of the city is drained by the river Korovia. These rivers form 5 catchments which are the part of the Prut River basin. In times of heavy rainfalls, they can go offshores and cause damage to the RL. Almost all the left bank part of Chernivtsi (Sadgirskyi district) belongs to the Potit river basin (Shubranets) - the largest inlet of Prut River within the city.

The complex structure hydrographic network structure of the right-bank city part (the territories of Pershotravnevyi and Shevchenkivskyi districts), within which there are 4 catchment basins: of the Klokuchka, Molnitsya rivers, small rivers on the right slope of the main river and the Korovia river. The Korovia river and a number of nameless left bank tributaries of Derelouy river drain the southern part of the city.

Over the last 100 years, due to urban development, the hydrographic network of Chernivtsi City has undergone significant changes. Planning of the surface, the destruction of its slopes, and of microrelief took place. The decrease in the depth and density of the erosion dismemberment led to the decrease in relief energy and simplification of the catchments structure.

The river network of the city has also changed. Part of the river beds were directed, changed by coastal structures, bridge crossings.

Water reservoirs of both natural and man-made origin are found on the city territory. The category of natural reservoirs include reservoirs of landslide regions (Rosha-Stinka neighborhood, Korsunskaya str.) and lake in the floodplain of the Prut River (Goricha district). Water basins of anthropogenic origin are ponds, dams which are built in the valleys of small rivers and temporary gutters, as well as those formed as a result of quarrying (the Kalichanka, Klokuchka neighborhoods). There are 8 ponds built in the southeastern part of the city, 5 of which are combined into 2 cascades. The maximum values of the ponds depth are 2,5-3,0 m. The ponds located within the park of Zhovtnevyi (cascade of ponds on Komarova str., Pivdenno-Kiltseva) are intensively used by the population as objects of water recreation.

Urban area with different land categories should be considered as a single integrated landscape system, in which soil is a basic component that ensures system performance, its functioning, sustainability and biodiversity. The soils of the Chernivtsi City are the mirror of a complex urban ecosystem, the intersection of all its flows and cycles of matter and energy. One of the main soil properties is the ability to absorb contaminants in its thickness, to keep them from penetrating into the ground water, as well as from dust entering the urban air. Unfortunately, urbanization causes the destruction (transformation) of soils in the most of natural ecosystems territory and the asphalted landscape emergence in combination with open natural anthropogenic complexes. Concrete and asphalt coatings virtually destroy the entire organic world in the soil.

Urban soils are the soils of industrial zones, residential areas, parks, squares, lawns, private buildings, agricultural areas, that is, all soils located within the city and belonging to both man-made and natural-anthropogenic complexes. The artificial anthropogenic-technogenic complex is involved in the formation of modern technogenic soils (urbosoils).

According to the conditions of soil formation, the territory of Chernivtsi City can be attributed to the forest-steppe natural zone, however, the right-bank part of the city has the characteristics of the Precarpathian forest meadow. But dominant soils characterize the subboreal forest-steppe. The forests in the city are preserved only on steep slopes of ravines and beams, in riverine territories, in the form of parks and squares.

According to the geobotanical zoning of the Ukraine, Chernivtsi City is located within the Vashkovetsko-Hlybotska geobotanical area of oak-beech forests and deciduous meadow vegetation of the Carpathian district of the Eastern Carpathian mountain sub-province of the Central European province (right bank of the Prut River) and Khotynskyi geobotanic region of

beech and oak forests of Kelmenetsko-Khotynskyi district of Western Ukrainian sub-province of Eastern European province (left bank of Prut River) [6].

The forest vegetation is widespread in the vicinity and in the city center (Tsetzino - Bila village, Sadgirsko - Khotynska height, Gariatsyi-Urban - Camping, Schiller recreation park, others).

Meadow vegetation is widespread in all city suburbs, formed on the site of deforested forests in areas that are not suitable for plowing or construction for various reasons. Small sections of edaphic conditioned extrazonal communities of meadow steppes and close-stepped meadows were found in suburban areas of Chernivtsi City. They belong to the Festuco-Brometea class and are formed on the steep slopes of the southern exposure with shallow carbonate rocks. Aquatic, coastal-aquatic and marsh vegetation is widespread in the Prut valley. Synanthropic vegetation is an integral part of the vegetation cover of the urbanized territories of Chernivtsi City. The basis of synanthropic vegetation are the sagittal and ruderal groups.

Landscaping complexes form the primary network of natural contours that have undergone fundamental transformations, especially within the framework of solid residential and industrial development. Within the city of Chernivtsi, natural and anthropogenic territorial complexes are represented by the following types of terrain: floodplain, low-terraced, mid-terraced, high-terraced, valley bottoms of small rivers (side tributaries), slope (valleys and watersheds), watersheds (plains), high altitudes. All of these marked areas have undergone a radical change and are, in most cases, characterized by high environmental stress.

Thus, a detailed analysis of the city territory natural conditions reveals the presence of a considerable number (872) of different length and area RL, which penetrate the city at different altitude levels, through complex geomorphological processes contribute to the spread of adverse natural anthropogenic processes [7]. In the central part of the city, most of the streets are covered with asphalt pavement. The same situstion is also in the caseof large connecting streets of Sadgirskyi (Yaroslav Moudrui st.), Pershotravnevyi (Ruska st.) and Shevchenkivskyi (Heroiv Maidanou) areas.

City streets of all-city significance (Avangardna, Vynnychenko, Gagarin, Galytskyi Shliakh, Golovna, Energetichna, Zarozhanska, Zastavnianska, Kalunivska, Karmelyuka, Kolomyiska, Marshala Rybalko, Nakhimova, Pivdenno-Kiltseva, Rivnenska, Ruska, Storozhinetska, Fastivska, Khotynska and others, total - 27) are asphalted, the percentage of demolition ranges from 5 to 50. The longest is considered to be Golovna street (area - 73082.5 m², length - 6355 m) - the main transport axis of the city, which houses the majority of recreational and tourist sites. The smallest (area - 3,850 m², length - 550 m) is Murou street. The central part of

the city is covered with pavement, which was laid in the nineteenth century. Due to the height difference, the pavement often collapses and slides. Despite the old water supply in the city, parts of the streets are often dugged in and they not only lose their original integrity, but they also significantly affect the aesthetics of the city. From November to April, potholes are formed on these cheeks due to natural conditions and considerable transport pressure. Each year, they need constant "patching" of pits and potholes, which is not always done with high quality and is very felt in the state of motor transport. The rest of the streets are residential, they are covered with chad, asphalt, often soil. The longest is considered to be Yaroslav Moudrui street (length - 4400 m) - the main transport axis of the Sadgirsky district, the smallest (length - 22 m) is Yampilskaya street. The percentage of wear varies from 5 to 40.

From 872 Chernivtsi RL 152 are lanes. In our opinion, they should be taken into account, as some of them are actively used in the recreational and tourist activities of the local population. For example – Berezhanskyi lane (located on the high terraces of the Prut River), where there are sacral objects, picturesque green spaces, landfills. From its position one can see the River Prut valley; Armenian lane, which is part of the city historical part and near it there is an organ hall, churches, others.

Despite the natural and anthropogenic complexity of modern RL functioning, the city remains one of the main recreational and tourist regions of the South Western Ukraine and is still poorly used (except for the central historical part) in the recreational and tourism sphere. The reason for this situation is not only the current state of RL, but also the weak use of the existing road potential in the recreational and tourism sphere. The vast majority of tourist routes run in the central part of the city. Today, there are virtually no trips out of the city frames. This is probably due to the time of the excursions, the lack of modern urban transport communications, the poor awareness of the peripheral recreational and tourist potential of the city. Therefore, we (based on street names and the presence of recreational and tourist sites on them), have monitored the streets due to their possible recreational and tourist use.

The block diagram of RL use allows to distinguish the following categorical information groups of Chernivtsi City streets, which are actively used and can be used for tourism and recreation development.

The first group (103 streets in total) are named after natural objects, phenomena, landscapes (60 streets in total: Berezivska, Verbova, Vunogradna, Vilkhovetska, Gorokhivska, Drobovetska, Dubinska, Zelena, Kashtanova, Levadna, Nadrichna, Parkova, Prutska, Sadova, Yaseneva, etc.). They reflect the city natural diversity, most of them also being axial streets starteen from the main highway. The group includes streets (43) that have some geographical

name and display a specific geographical location. These are the Alpyiska, Baltyiska, Bukovynska, Verkhovynska, Volunska, Grouzunska, Hutsulska, Desnianska, Dnistrianska, Estonska, Latvyiska, Moldavska, Perekopska, Podolska, Smotrytska, Khortytska, Chudeyska and others.

According to the 5-point scale of the current use of these streets in recreational and tourism activities, the indicated group of RL is estimated at 4 points.

The second group includes 260 RL, in the name of which public processes are laid (38 roads). These are Avangardna, Aviatsyina, Braterstva, Budivelna, Democratichna, Zavodska, Festivalna, Skladska etc. streets. In spatial terms, they are the major axis that extends from the central part of the city. These include the main district roads of Chernivtsi City. A group of streets is distinguished, which are named in honour of neighboring cities and towns. They have 222 streets. This is Banylivska, Baturynska, Berehometska, Berezhanska, Bershadska, Beloruska, Belotserkivska, Boryspilska, Borshchivska, Vizhnytska, Virmenska, Zaporizska, Zastavnianska, Pidgirna, Pidgaetska, Stryiska. In most cases, duplication of names of settlements and streets names of certain regions of the former Soviet Union and neighboring settlements has occurred.

According to the point scale of these streets usage in recreational and tourist activity, the indicated RL group is estimated at 3 points.

The Third Group is formed by RLs, which name is engraved with the city's historical and cultural monuments, the names of the inhabitants (political and religious figures) and figures (workers of culture and art), who at different periods of time were involved in the city development. There are more than 60 of them, and they are located in the city central historical part and its districts (Alexandri, Zalozetskyi, Zatishna, Iliutsi, Kanyuka, Karbulitskogo, Karmelyuka, Kovalchuka, Kochubeia, Makoveia, Maksimovicha, Martovycha, Mizyuma, Nalepky, Udonova, Khudyakova, Cheremshiny, Chkalova etc.).

German, Ukrainian, Russian, Polish, Romanian, Austrian writers, composers, scholars, artists (Barbius, Beethoven, Belinsky, Vynnychenko, Wilde, Worobkevich, Galan, Gogol, Artemovsky, Zankovetska, Kvitka-Osnovyanenko, Kotlyarevskyi, Ukrainka, Mykolaychuk, Mirnyi, Franko etc.). at different lived, worked, rested in the city.

The group includes streets named after the events of social and progressive development (70 streets). They are named after national leaders, national heroes, prominent scientists, and political fighters (29 Bereznia, Artema, Bohuna, Gontu, Grushevskogo, Dovbusha, Karmelyuka, Kobylitsya, Pidkovu, Rudanskogo, etc.).

The streets which are named after the heroes of the Great Patriotic War. There are 27 of them in the city (Gastello, Marshall Zhukov, Kovpak, Kosiora, Kosmodemyanskaya, Koshovogo,

Marshala Rybalko). In recent years, there has been an active renaming of such streets. However, the lion part of them still retains its original name.

According to the 10-point scale of these streets current usage in recreational and tourism activities, the specified group of DL is estimated at 5 points.

We have grouped 598 streets by 3 indexes. However, there are about 30 streets whose name and time of creation are not set. Further study development will be focused on this issue more detailed coverage.

Conclusion. RL - complex systems of anthropogenic (mainly technogenic) origin with only them inherent features and structural organization. RL is a natural and anthropogenic system created by the interaction of natural, technical and management units. In the RL component structure the leading role belongs to the earth's surface forms and their geological-geomorphological structure, vegetation cover and technogenic elements.

Three RLs groups cover natural, social, historical and cultural events, phenomena that in future can be used by different tourist structures of the Chernivtsi City. According to their current level usage in the recreational and tourist sphere, they are rated by us from 1 to 5 points. The highest score (5 points) has a third RLs group, which geographically occupies the central historical part of the city and its districts. Their recreational and tourist use is the highest today. The second group is formed by RLs, which reflect the natural, landscape and geographical territory features. Their score is 4 points. This is a promising RL group as they have a considerable potential for hiking routes and trails on their territory. In the third place is a group of streets, the names of which dates back to the Soviet times. These are the RLs on which the industrial enterprises operated (for example, Yaroslav Moudrui street numbered about 7 industrial enterprises and was the main employment area of the local population and the city industrial core). Today, most enterprises are either out of business or partially operating, but they can be a prime industrial tourism destination.

Our study RL is in its infancy. In the future the RL features, their territorial distribution, the existing and possible tourist and recreational load, the ecological status level in their own territory and in the neighboring territories will be revealed. Therefore, on this basis, we consider this study relevant and promising.

Reference

1. *Denysik G. (1998)* Anthropogenic landscapes of the right-bank Ukraine. Vinnitsa: publisher „Arbat”, P. 69. *[In Ukrainian]*

2. *Denysik G. (2001)* General and regional anthropogenic landscape science. Vinnitsa**:** (scientific notes of Vinnytsia State Pedagogical University named after Mikhail Kotsyubynsky), Vol. II. Geography, P. 5-11**.** *[In Ukrainian]*

3. *Denysik G. (2002)* Natural geography at the beginning of the 21st century. Ternopil: (scientific notes of Ternopil Pedagogical University), Vol. 2, P. 61-62**.** *[In Ukrainian]*

4. *Denysik G. (1998)* Natural geography of Podillya. Vinnitsa**:** publisher **„**Ekobisnestsentr**",** 183 p. *[In Ukrainian]*

5. *Denysik G. (2005)* The road landscapes of Podillya. Vinnitsa: publisher „Teza", 180 c. *[In Ukrainian]*

6. *Kilinskaya K. (2015)* Environmental management and natural diversity. Theoretical and methodological approaches. Chernivtsi: (Chernivtsi National University), 306 p. *[In Ukrainian]*

7. *Krutsik M. (1989)* Protection of mountain roads from destruction. Uzhhorod: publisher „Karpatu", 94 p. *[In Russian]*

8. *Milkov F. (1986)* Physical geography: the doctrine of the landscape and geographical zoning. Voronezh: (Voronezh State University), 328 p. *[In Russian]*

9. *Milkov F. (1973)* Man and landscapes. Moscow: publisher „Musl", 222 p. *[In Russian]*