Landscape approach to assessing recreational development of the Novgorod region

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Abstract. The development of tourism in areas related to socio-economic semi-periphery and periphery is one of the important tasks of the integrated development of the region. Geographic research is needed to assess the potential of different areas. The article proposes a methodology and presents the experience of assessing the development of the territory of the Novgorod region from the point of view of the landscape approach. Based on the assessment, areas with varying levels of development are identified, an analysis of the transport accessibility and tourist attractiveness of each landscape is given, and promising types of recreational activities are proposed.

1. Introduction
The Novgorod region can be described as an amazing territory on which unusual landscapes are intertwined due to its aesthetic originality, diverse conditions, rich species composition and history of the Russian land.

The uniqueness of the region lies in its huge heritage, numbering more than 4800 historical and cultural sites, including monuments of ancient Russian architecture of the pre-Mongol period, the presence of specially protected natural areas (SPNA) and natural landmarks, mineral healing springs, large bodies of water, various (within the plain) relief forms, picturesque landscapes. At the same time, many natural and recreational resources are concentrated in semi-peripheral and peripheral areas from the point of view of socio-economic development, which complicates their use.

The competent development of natural territories for organization of tourist and recreational activities requires their comprehensive study. More often than not, the territorial basis for the description and assessment are administrative units (areas, settlements, individual settlements). In scientific practice, there are many works devoted to the assessment of SPNA as objects of tourist interest [1, 2], individual territories, regions and objects [3, 4, 5], general issues of recreational assessment and opportunities for the development of ecological and cultural tourism in cultural landscapes [6, 7, 8].

The degree of development of the territory and its potential is greatly influenced by anthropogenic activities and cultural and historical development. But of no small importance is the natural component, which has both a direct (with all components of the landscape environment) and indirect (through historical types of nature management) impact on the recreational opportunities of the territories. The landscape approach to studying the development and suitability of territories for the development of certain types of activities, including recreational, allows for considering the natural resource base without taking into account administrative boundaries.
On this basis, it seems methodologically interesting to analyze and evaluate the tourist and recreational potential in the context of landscapes. A similar study is unique to the territory of the Novgorod region.

2. Objects and methods of research
The object of the study was the landscapes from the point of view of their development for the development of tourist and recreational activities in the Novgorod region.

The level of development of landscape territories was assessed using the cartographic method (method of mapping), the analysis of geographical and natural materials, the descriptive-geographical method, the method of scoring and ranking. The basis is landscape zoning of Z. E. Antonova (2015). The study also used field observations.

3. Results and discussion
A comprehensive assessment of the existing tourist and recreational potential should take into account the uniqueness, accessibility, physical condition and diversity of the available facilities.

On the territory of the Novgorod region, 26 landscapes were identified. All of them are unique, they have their own natural and recreational resources and contain potential objects of tourist interest.

1) Volkhovsky landscape. The Volkhov River crosses the entire territory of this landscape, which provides opportunities for the development of water tourism, there are resources for cultural tourism (cultural and historical resources of the Chudovsky region), as well as their combination. Transport accessibility: Oktyabrskaya Railway, station in Chudovo, M-10 St. Petersburg-Moscow highway, Volkhov River (navigable).

2) Nizhne-Mstinsky landscape. The entire territory of this landscape is crossed by a section of the lower course of the Msta river. Water, cultural, educational, environmental, rural, event tourism have potential.

3) Vishersky landscape. Transport accessibility: Railway section Mstinsky bridge – Malaya Vishera. The presence of SPNA on the landscape territory. Promising types of tourism: water, cultural and educational.

4) Nebolchsky landscape. Transport accessibility: the St. Petersburg – Kirishi – Nebolchi – Terebutinets – Khvoynaya – Kabozha – Pestovo – Sonkovo – Moscow railway passes through this landscape. Tourism: amateur walking tours along the Msta River. Very low tourist potential.

5) Sherekhovichsky landscape. Transport accessibility: there are a number of suburban bus routes: Lyubytno – Agafonovo, Lyubytno – Komarovo, Lyubytno – Yartsevo, Lyubytno – Vycherema, Lyubytno – Nebolchi, Lyubytno – Dregli (via Nebolchi).

Tourism potential: 5 SPNA are identified in this landscape. In the village of Selishchi, six kilometers east of Lyubytno, there is an operating off-season skiing eco-resort “Lyuborgorye”. Fans of outdoor activities can engage in various sports. Also unique landscape features attract many ecotourism and outdoor recreation enthusiasts.

6) Uversky landscape. Transport accessibility: Borovichi – Pestovo highway, Borovichi – Khvoynaya. Tourist potential: the landscape is rich in lakes. But there are no conditions for organized tourism. In the development perspective is cultural, educational and ecological tourism for lovers of outdoor recreation. Scientific tourism is also possible, since this landscape is interesting for its geomorphological features, karst landforms. This is one of the underdeveloped landscapes. Also, some sites can be used for sports motocross.

7) Mstinsko-Uversky landscape. Transport accessibility: section of the Borovichi – Pestovo highway in the northern part. The remaining roads are rural, unpaved. Tourism potential: rafting on the upper course of the Msta River (rafts) and professional rafting would be a promising type of tourism.

8) Meglinsky landscape. Transport accessibility: Veliky Novgorod – Kresttsy – Okulovka – Borovichi – Pestovo highway.
Tourist potential: in this landscape there are a large number of large lakes (Meglino, Sukhoe, Velikoe, Chernoye lakes, etc.), which makes outdoor activities possible: jet skiing, rowing, and there are also opportunities for arranging hiking and cycling tours.

9) Khvoinskiy landscape. Transport accessibility: Veliky Novgorod – Kresttsy – Okulovka – Borovichi – Khvoynaya highway. Tourist potential: remoteness from the main communication lines and the regional center have a negative impact on the development of tourism in this landscape. Sparsely populated, underdeveloped, but with great opportunities for fans of hiking and cycling.

10) Pestovsky landscape. Transport accessibility: Veliky Novgorod – Kresttsy – Okulovka – Borovichi – Pestovo highway. Railway St. Petersburg – Kirishi – Nebolchi – Terebutinets – Khvoynaya – Kabozha – Pestovo – Sonkovo – Moscow. Tourist potential: due to the remoteness, this landscape can be used mainly by independent tourists.

11) Verkhne-Luzhsky landscape. Transport accessibility: the Batetskiy railway station is located at the intersection of the highways St. Petersburg – Dno – (Kiev, Minsk, Pskov, Chisinau) and Novgorod – Luga. The highway Novgorod – Luga, as well as a branch from it to Shimsk. Tourist potential: convenient location, favorable conditions – all this is a powerful factor in the development of this landscape. There are natural and cultural-historical objects of tourist interest (Shum-Gora/Noise Hill, estates, objects of rural tourism, religious architecture, etc.).

12) Nizhnee-Shelonsky landscape. The central object is the Shelon river. Transport accessibility: Veliky Novgorod – Shimsk – Soltsy – Porkhov highway. Tourism potential: good opportunities for the development of water tourism – kayaking, rafting and rafting tours.

13) Ilmensky lakeside landscape. Transport accessibility: the regional center Veliky Novgorod, high transport development – federal highway M-10 Moscow – St. Petersburg, railway Chudovo – Veliky Novgorod. Tourism potential: good cultural and historical resources, many types of tourism can be developed (cultural, educational, historical, religious, eventful, business, children’s, sports, jeeping, scientific, cruise). The infrastructure is well developed only in the northern part of the landscape.

14) Ilmensky lacustrine landscape (lake Ilmen). Transport accessibility: Veliky Novgorod, Staraya Russa, Shimsk. Tourism potential: water tourism, water recreation, cruises.

15) Volotovsky landscape. Transport accessibility: the Bologoe-Moscow – Valday – Staraya Russa – Dno-1 railway passes through Volot. The village is connected by roads with Staraya Russa, Veliky Novgorod and Soltsy (via Vybit). Tourist potential: the north-eastern and eastern parts of this landscape are interesting, namely the valleys of the rivers Psizh, Kreksa and Tuleblya, Ilmensky glint. Promising types of tourism: ecological and scientific.

16) Beglovo-Vinsky landscape. Transport accessibility: Veliky Novgorod – Kresttsy highway (section of the federal highway M-10). Tourist potential: due to good transport accessibility, there are opportunities for the development of ecological tourism, as the landscape is interesting for its swamp massifs. But, in general, the landscape is quite uniform.

17) Nizhne-Lovatsky, 18) Sredne-Lovatsky, 19) Polistovsky landscapes.

These landscapes of the South Prilmensky landscape district have a large bog. Transport accessibility: Veliky Novgorod – Staraya Russa – Poddorye – Kholm. Tourist potential: in this group of landscapes there is a part of the Rdeyskiy reserve – a large swamp massif that has unique qualities, both hydrological and environment-forming. Tourism infrastructure is poorly developed. Ecological, walking tourism. Because of the rivers Polist, Lovat, it is possible to develop water tourism, such as river tours.

20) Kholovsky landscape. Confinced to the basin of the Holova river. Transport accessibility: Veliky Novgorod – Kresttsy highway. Tourist potential: promising types of tourism are water – kayaking.

21) Polometsky landscape. Most of the landscape is swampy. Transport accessibility: Staraya Russa – Demyansk – Valday highway. Tourism potential: there are no prospects for the development of tourism at the regional level. Amateur environmental hiking tourism is possible.

22) Kholmsky landscape. Transport accessibility: in the southern part there are four roads: one (P51) through Poddorye connects Kholm with Staraya Russa, the other (P51) through the village of Loknya in the Pskov region connects it with Velikiye Luki, the third leads to Maryovo and Demyansk, the fourth to Toropets. The rest of the landscape is swampy and underdeveloped. Tourism potential: there are
prospects for the development of cultural and educational tourism due to the presence of cultural and historical monuments in this landscape – the remains of the Rdeyskiy monastery (XVIII century), the former estates of Bobrovy (XIX century) and Shakhovsky (XVIII century) princes, as well as the “Blue Lagoon” – the natural threshold of the Mesozoic geological plate on the Bolshoi Tuder river, the water there has healing properties due to the occurrence of blue clay in the area.

23) Okulovsky landscape. Transport accessibility: Oktyabrskaya Railway Moscow – St. Petersburg. The highway Veliky Novgorod – Kresttsy – Okulovka. Tourist potential: “Land of wonders” is the name of Okulovsky district. This is one of the most beautiful landscapes of the Novgorod region. It is quite well developed for tourist purposes, there is an appropriate infrastructure, recreation facilities and much more. Promising types of tourism: cultural, educational, religious, scientific, environmental, hiking, bike and motorcycle tours, water tourism – kayaking.

24) Sredne-Mstinsky landscape. Transport accessibility: Veliky Novgorod – Kresttsy – Okulovka – Borovichi highway. Tourism potential: promising types of tourism – rafting and rafting tours, pot-holing, scientific, cultural, educational, environmental tourism.

25) Zapadno-Valdaysky landscape. Transport accessibility: inaccessible. Tourist potential: historical sights are park ensembles at former estates. Promising types of tourism: cultural and historical, ecological. But in reality, the development of tourism in this landscape is almost impossible.

26) Vostochno-Valdaysky landscape. Transport accessibility: federal highway Moscow – St. Petersburg (M-10), railway Bologoe – Valday. Tourist potential: Valday has been developed since ancient times as one of the major tourism centers of the Novgorod region. Types of tourism: religious (Iversky monastery), cultural, educational, ecological (Valday National Park), outdoor activities on lake Seliger.

Quantitative evaluation is one of the problem areas in the study of landscapes. One of the most common, adequate and objective methods is the scoring method. Using the scoring method, the landscapes of the region were estimated on the basis of indicators such as population of the territory, characterizing its development, distance from the center, showing transport accessibility, and the presence of natural monuments as potential objects of tourist interest.

To measure the development of the territory in points, the presence of an administrative center in the landscape and the allocation of groups by population size were taken into account, since larger settlements can offer a more diverse range of services (accommodation, food, trade, etc.). The group of highly developed landscapes with an index of 3 points includes landscapes, the population of the administrative district center of which is 14,000 people and more. Landscapes, the population of the administrative centers of which are from 6,000 to 14,000 people, are considered moderately developed, they are awarded an index of 2 points. Landscapes with a population of administrative regional centers of up to 6,000 people are considered underdeveloped (1 point). Landscapes on the territory of which there are no large administrative centers received a score of 0 points.

Estimation of the distance from the center was carried out on a 3-point scale. Index 3 was assigned to the territory where natural landmarks and sights were located at a distance of 0 to 100 km from the administrative center, 2 points were given to territories whose objects of observation were located at a distance of 100-190 km, 1 point was assigned to territories with a distance of over 190 km.

Assessment of natural landmarks was carried out according to their number and physical condition on this territory. This characteristic did not include wildlife sanctuaries, nature reserves and national parks. If the landscape contains from 1 to 5 natural landmarks, 1 point is assigned to it, from 6 to 10 – 2 points, more than 10 – 3 points.

A comprehensive assessment made it possible to identify three groups of landscapes in the territory that differ in the total number of points for the indicators described above, and, accordingly, their high, moderate, low level of development, and impact on the development of tourist activity. Data on the comprehensive assessment of landscape areas are presented in the table (table 1.).
| №  | Landscape                     | Population of the area | Distance to the center | Natural landmarks | Total points |
|----|-------------------------------|------------------------|------------------------|-------------------|--------------|
|    |                               | People     | Point | Km  | Point | Q-ty | Point |          |              |              |
| 1  | Volkhovsky                    | 14 973     | 3     | 70  | 3     | 4    | 1     | 7        |              |              |
| 2  | Nizhne-Mstinsky               | -          | 0     | 0-100 | 3     | -    | 0     | 3        |              |              |
| 3  | Vishersky                     | 11 297     | 2     | 65  | 3     | 6    | 2     | 7        |              |              |
| 4  | Nebolchsky                    | -          | 0     | 100-190 | 2     | -    | 0     | 2        |              |              |
| 5  | Sherekhovichsky               | 2537       | 1     | 126 | 2     | 5    | 1     | 4        |              |              |
| 6  | Uversky                       | 2229       | 1     | 100-190 | 2     | 6    | 2     | 5        |              |              |
| 7  | Mstinsko-Uversky              | -          | 0     | 100-190 | 2     | -    | 0     | 2        |              |              |
| 8  | Meglinsky                     | -          | 0     | 100-190 | 1     | 1    | 1     | 2        |              |              |
| 9  | Khvoininsky                   | 6087       | 2     | 190 | 1     | 4    | 1     | 4        |              |              |
| 10 | Pestovsky                     | 15 593     | 3     | 263 | 1     | 1    | 1     | 5        |              |              |
| 11 | Verkhn-Luzhsky                | 2258       | 1     | 58  | 3     | 2    | 1     | 5        |              |              |
| 12 | Nizhne-Shelonsky              | 9099       | 3     | 71  | 3     | 9    | 2     | 7        |              |              |
| 13 | Ilmensky lakeside             | 221868     | 3     | 0-100 | 3     | 9    | 2     | 8        |              |              |
| 14 | Ilmensky lacustrine           | -          | 0     | 0-100 | 3     | -    | 0     | 3        |              |              |
| 15 | Volotovsky                    | 2236       | 1     | 73  | 3     | 4    | 1     | 5        |              |              |
| 16 | Beglovo-Vinsky                | -          | 0     | 0-100 | 3     | 2    | 1     | 4        |              |              |
| 17 | Nizhne-Lovatsky               | 29 489     | 3     | 59  | 3     | 1    | 1     | 7        |              |              |
| 18 | Sredne-Lovatsky               | 1860       | 1     | 117 | 2     | 2    | 1     | 4        |              |              |
| 19 | Polistovsky                   | -          | 0     | 100-190 | 2     | 1    | 1     | 4        |              |              |
| 20 | Kholovsky                     | 7998       | 2     | 88  | 3     | 4    | 1     | 6        |              |              |
| 21 | Polometsky                    | -          | 0     | 100-190 | 2     | -    | 0     | 2        |              |              |
| 22 | Kholmsky                      | 3493       | 1     | 200 | 1     | -    | 0     | 2        |              |              |
| 23 | Okulovsky                     | 10 735     | 2     | 118 | 2     | 26   | 3     | 7        |              |              |
| 24 | Sredne-Mstinsky               | 51555      | 3     | 153 | 2     | 12   | 3     | 7        |              |              |
| 25 | Zapadno-Valdaysky             | 4637       | 2     | 120 | 2     | 7    | 2     | 6        |              |              |
| 26 | Vostochno-Valdaysky           | 14489      | 3     | 130 | 2     | 5    | 3     | 7        |              |              |

In the table, the “-“ sign indicates the absence of objects of observation.
Groups of landscapes according to their level of development are presented on the map (figure 1).
Figure 1. Development of the landscapes of the Novgorod region.

Landscapes of the Novgorod region: 1 – Volkovskiy, 2 – Nizhne-Mstinsky, 3 – Vishersky, 4 – Nebolchsky, 5 – Sherekhovichsky, 6 – Uversky, 7 – Mstinsko-Uversky, 8 – Meglinsky, 9 – Khvoyninsky, 10 – Pestovskiy, 11 – Verkhne-Luzhsky, 12 – Nizhne-Shelonsky, 13 – Ilmensky lakeside, 14 – Ilmensky lacustrine, 15 – Volotovsky, 16 – Beglovo-Vinsky, 17 – Nizhne-Lovatsky, 18 – Sredne-Lovatsky, 19 – Polistovsky, 20 – Khlovsky, 21 – Polometsky, 22 – Kholovsky, 23 – Okulovsky, 24 – Sredne-Mstinsky, 25 – Zapadno-Valdaysky, 26 – Vostochno-Valdaysky.

High landscape development (6–8 points) is typical for territories whose transport security is at a higher level and which have high tourist potential. This group includes such landscapes as Volkovskiy, Nizhne-Shelonsky, Ilmensky lakeside, Nizhne-Lovatsky, Kholovsky, Okulovsky, Sredne-Mstinsky, Zapadno-Valdaysky, Vostochno-Valdaysky.

The second group consists of landscapes with a total of 3–5 points. This group includes Nizhne-Mstinsky, Uversky, Khvoyninsky, Pestovskiy, Verkhne-Luzhsky, Ilmensky lacustrine, Beglovo-Vinsky, Sredne-Lovatsky, Polistovsky, Sherekhovichsky, Volotovsky and Vishersky landscapes.

The most unused in the tourism sector (0–2 points), poorly developed or remote from large administrative centers landscapes are Kholmsky, Polometsky, Meglinsky, Nebolchsky, Mstinsko-Uversky. This group is characterized by a small number and poor physical condition of natural monuments, poor transport accessibility of the territory.

As can be seen from the map, the most developed territories are located in the floodplain of lake Ilmen and the river Volkhov – the largest and historically most developed bodies of water in the region, as well as at the junction of the main landforms of the region – the Prilmseny lowland and the Valdai Hills. This once again proves that mosaic landscapes are the most attractive for the development and organization of recreational activities.

4. Conclusion

The development of landscapes depends on many factors, such as the historical population of the territory, the modern population of the territories, the development of the transport network. As a result of the study, a verbal and point assessment of the landscapes of the Novgorod region was carried out in terms of their development and accessibility for the development of recreational activities. Three groups of landscapes were identified: highly-developed, moderately developed and underdeveloped, a map was
compiled and it was revealed that the most populated and involved in the tourism sector are the Sredne-
Mstinsky, Vostochno-Valdaysky, Okulovsky landscapes, Ilmensky lacustrine, Nizhne-Shelonsky,
Ilmensky lakeside landscapes. Khvoyninsky, Mstinsko-Uversky, Sherekhovichsky landscapes have
great tourist potential. Potential types of tourism are proposed for each of the landscapes, taking into
account their physical and geographical conditions and uniqueness.

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