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SLOVENIA AS A EUROPEAN LANDSCAPE HOTSPOT

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Abstract

In the first part of the analysis we tried to define places in Europe with higher diversity according to different natural landscape types or landscape regions. In order to get such "hotspots" four geographical classifications of Europe were analyzed (Environmental stratification of Europe [21]; European landscape classification [24]; Biogeographical regions [3]; Terrestrial ecoregions of the World [26]). At first maps of variety of landscapes were defined based on each classification that we took into account. This step was done by calculating a number of different unique natural landscape types or regions in radius of 50 km for each cell. Each map of variety of landscapes was then weighted (cell values were divided by a number of all unique types or regions in a division). At the final stage of this part all the maps were synthesized (averaged) into one map showing landscape diversity for the Europe. After that step we defined Europe's landscape hotspots and pointed out the most naturally heterogeneous countries. We found that among all of the European countries, Slovenia has the highest average landscape diversity. Such result gives the country some advantages in the field of tourism based on the natural values of landscape. One of the benefits of having high landscape diversity is making it possible to advertise Slovenia as a tourist destination, offering a "pan-European experience."

Keywords: *landscapes, landscape diversity, regional geography, Slovenia, Europe*

INTRODUCTION

Slovenians believe that Slovenia is among the most diverse countries in Europe, especially in relation to its size. But the question is whether other Europeans perceive Slovenia similarly and whether this belief is also scientifically justified.

The area of central Europe where Slovenia lies, with a radius of 150 km, is at the intersection of the high Alps with their pre-Alpine hills and basins, the level land of the Pannonian Plain with its hilly margin, the karstified area of the Dinaric Alps with its karst plateaus, and the Mediterranean hills with the moderating effect of the Adriatic Sea. This is also the meeting point of four cultural areas—Slavic, Germanic, Romance, and Hungarian—and so this small area has seen the formation of many types of natural and cultural landscapes [18], [30]. Despite its small size, Slovenia is therefore very diverse.

Slovenia has few natural resources, so its landscape diversity can and should be a development opportunity. In other words Slovenia's landscape diversity has its marketing and promotional value. This shows the great potential of Slovenia in the field of tourism based on the natural values of landscape, namely "*tourism and the physical environment are inseparable companions, as most destinations are based on the natural attractions*" [37, p. 641]. Beside that there are many possibilities to advertise Slovenia as a tourist destination offering a "pan-European experience" or at least a tourist destination at the crossroads of different European regions. "*The more a destination is able to meet the needs of the tourists, the more it is perceived to be attractive and the more the destination is likely to be chosen*" [37, p. 638]. Thus diverse natural environment is an advantage for tourism development of the country. Some countries are already using their geographical characteristics or geographical position for their tourism slogans. Albania is advertised as "*A new Mediterranean love*", Andorra as "*The Pyrenean country*", Croatia as "*The Mediterranean as it once was*", Malta as "*Truly Mediterranean*", Portugal as "*Europe's West Coast*", and Romania as "*Explore the Carpathian garden*".

As an addition to the Slovenian slogan "*I feel Slovenia*" the landscape diversity of Slovenia could be used in more geographically designed slogans such as "*Slovenia – miniature Europe*", "*Slovenia – the whole Europe at one place*", "*Slovenia: half of Europe together*" or "*Slovenia: half of Europe at a time*".

These slogans express that Slovenia offers almost as much as a trip across Europe, but certainly at least as much as the Alpine, Mediterranean, Dinaric and Pannonian Europe or coastal and inland areas of Europe.

Figure 1: Slovenia is the only country which is included in all three Lonely Planet guides: Central, Mediterranean and Eastern Europe.

Geographical studies of Slovenia show that it is precisely the contact point between various landscape types that prove to be especially interesting, and that the area along the borders between different landscape types can be defined as a kind of landscape hotspot. The goal of the study was to analyze Slovenia's attractiveness at European level according to European landscape hotspots map [7].

When defining country's attractiveness Aminuddin [1] took into account also natural factors, including availability to different landscape types (e.g. beaches, islands, tropical rain forest). Ritchie and Zins [31] defined natural climate and beauty (including proximity to different water bodies and presence of landscape types) as the most important determinant of the attractiveness of a given region.

Published research and online material include many classifications of countries, continents, and also smaller areas created based on natural and social features. They can help us to calculate the proximity to different landscape types. Examples of such landscape classification can be found for various countries around the world, including Slovenia (e.g., [28], [33]). There is also a rich selection of European landscape classifications [21], [17], [22], [23], [24], [10], [4], [19]; [13], [32]; [3] and also for the entire world [26], [2], [36]. It must also be remembered that all of these classifications involve a certain abstraction. Namely, a model is a simplified representation of the real world [8], and so there are also differences among landscape classifications for the same areas.

METHODOLOGY

In order to evaluate attractiveness of Slovenia this paper analyzes various digital natural landscape classifications of Europe and tries to answer the question: *"How diverse and attractive is Slovenia in comparison to other European countries?*". First we had to find areas where different European natural landscape units (types or regions) meet. Areas where there is a mix of various natural factors are important from the aspect of biodiversity because landscape diversity has an important impact on biodiversity (i.e., habitat and species diversity; [11]; [16]; [38]. Areas with landscape diversity may also have an advantage in economic development, and especially in tourism, because "*human perception values diversity, complexity, patterns, and local characte*r" [12, p. 36]. Gray [15] believes that the significance of diverse types of relief and richness of terrain details for the popularity of tourism areas is greatly underestimated. Some authors mentioned in the introduction already pointed out the significance of proximity to different landscape types for tourism attractiveness [37], [1], [31]..

This analysis includes four landscape classifications, which are primarily based on natural landscape elements and are accessible in digital format. For this analysis, classifications were chosen that have a similar number of types or regions (Figure 2).

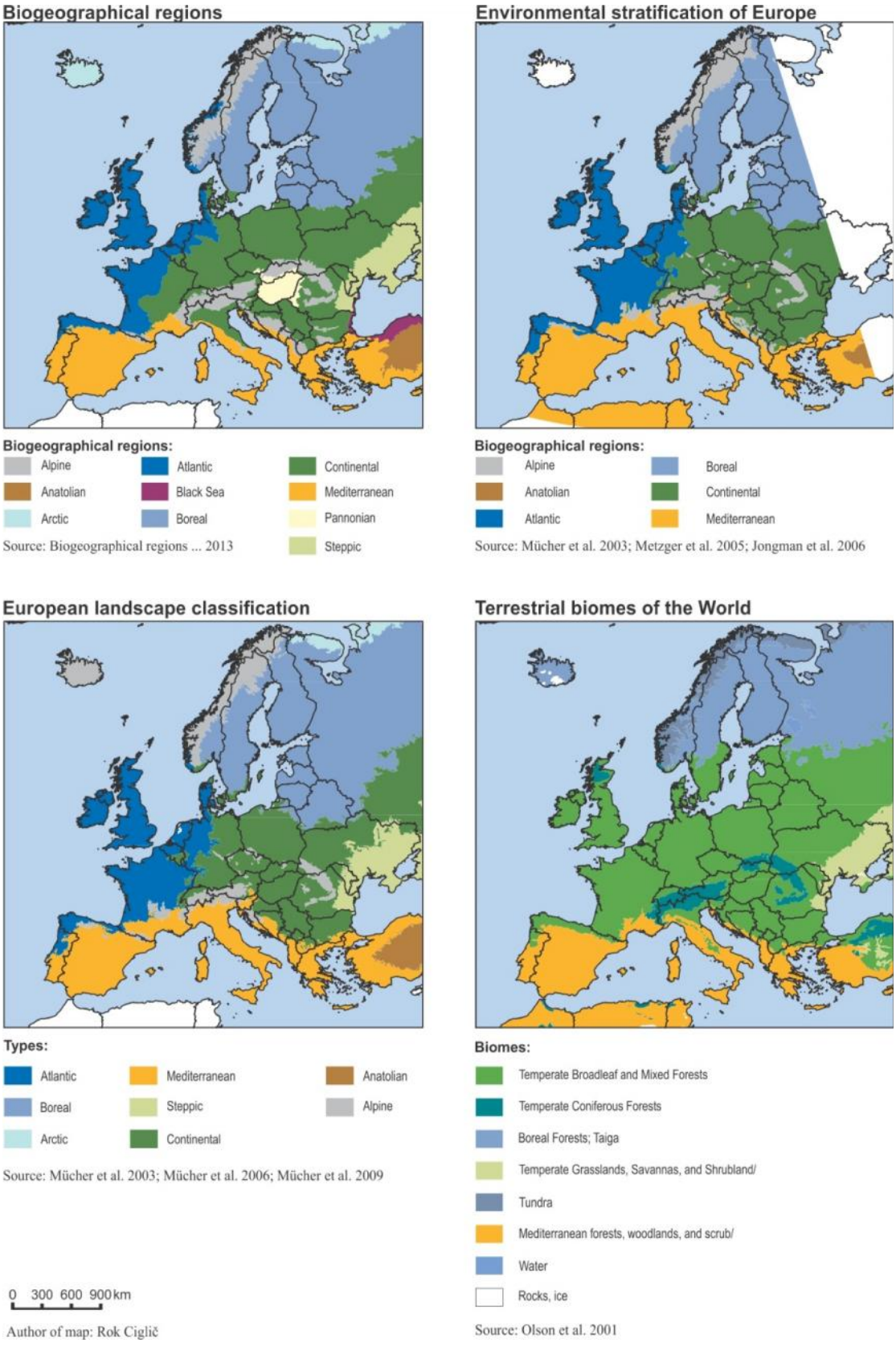

Figure 2: Presentation of individual classifications.

For each classification the number of types appearing in a ten-cell (or 50 km) radius was calculated for each cell. Thus some sort of landscape diversity map was obtained for each of the four classifications. The radius was defined subjectively (a smaller radius would yield similar results, but landscape diversity would be limited to a smaller area, and a larger radius would yield landscape diversity only for larger areas). After creating the landscape diversity map for each classification analyzed, all of them were joined into a combined landscape diversity map. This was done such that each landscape diversity map was first divided by the number of all possible classification categories (landscape types or regions) in the study area. This therefore showed the percentage of landscape categories of a specific classification in a radius of 50 km for each cell. Then all of the weighted landscape diversity maps were used to calculate an average (Ciglič & Perko 2013).

EUROPE'S LANDSCAPE DIVERSITY

The map of average landscape diversity in Europe (Figure 3 [7]) shows the percentage of landscape categories that appear in a radius of 50 km around each cell on average with regard to all of the classifications analyzed.

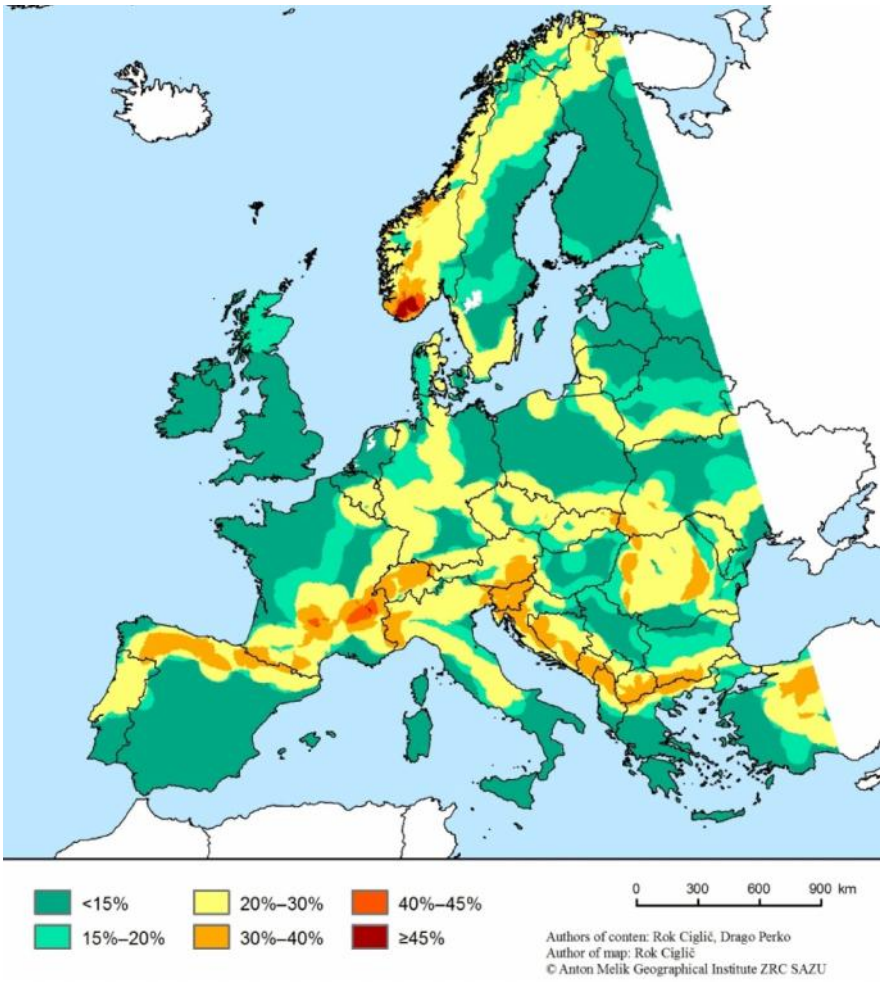

Figure 3: Europe's landscape diversity (share of landscape categories in percentages appearing in a 50 km radius of each cell, average for all classifications used).

From the map it is clear that the points of contact of various landscapes, including the most diverse landscapes, are primarily along chains of mountains (the Pyrenees, the Alps, the Dinarides, the Carpathians, and the Massif Central), in southern Scandinavia, and in western Anatolia. These areas have on average contact of at least 30% of all categories that appear in individual landscape classification. The area where the most different types intersect is, somewhat surprisingly, extreme southern Norway, where on average 49% of all landscape categories mix. Only a small area of the Massif Central and the western Alps also exceed 40%. Analyzing diversity by countries (Table 1) shows that small countries have the highest landscape diversity (Slovenia, Liechtenstein, Montenegro, Switzerland, Macedonia, Andorra, Bosnia-Herzegovina, Austria, and Croatia average over 25%); however, many small countries (e.g., Malta, Ireland, Estonia, Latvia) do not exceed 15% which means that the size of a country is not a decisive factor for diversity [7]. From the perspective of the diversity of the entire country, an example of a hotspot is Slovenia, which is the most diverse country on average. Within Slovenia, in a 50 km radius the cells have an average of 32.5% of all categories defined for the European study area.

Such ranking (Table 1) can also be used as one of the additional factors for country's attractiveness ranking (e.g. [34]).

Table 1: Highest and average share of landscape categories in Europe in a 50 km radius around an individual cell for all cells within individual countries.

Country	Maximum in %	Average in %	Country	Maximum in %	Average in %
Slovenia	39.4	33.2	Portugal	32.1	19.7
Liechtenstein	32.1	32.1	Italy	35.2	19.6
Montenegro	34.6	30.1	Germany	32.1	19.6
Switzerland	39.4	29.8	Sweden	30.4	18.8
Macedonia	34.6	29.6	Denmark	23.8	18.3
Andorra	30.4	29.5	San Marino	18.1	18.1
Bosnia and Herzegovina	37.7	26.6	Spain	37.7	17.7
Austria	35.2	26.0	Greece	34.6	17.2
Croatia	37.7	25.2	Hungary	34.6	16.8
Norway	49.2	25.0	Poland	30.4	16.5
Kosovo	34.6	24.9	Lithuania	23.8	16.2
Romania	37.7	24.2	Serbia	27.9	15.7
Slovakia	30.4	22.9	Finland	31.0	15.6
Albania	34.6	22.8	Netherlands	23.8	15.3
Luxembourg	21.3	21.3	United Kingdom	18.1	14.8
Moldova	23.8	20.8	Latvia	21.3	14.7
Czech Republic	30.4	20.8	Estonia	18.1	14.2
Bulgaria	34.6	20.4	Ireland	14.0	14.0
France	46.0	20.1	Malta	14.0	14.0
Belgium	23.8	19.8			

SLOVENIA AS A HOTSPOT

After the comparison of countries' landscape diversity we noticed that Slovenia has the highest average landscape diversity. This fact was also pointed out by several Slovenian researchers. Melik [20] characterized Slovenia as a "*land of contacts*", and Gams [14], Perko [28], and Plut [29] emphasized the intersection of four European natural geography regions (the Alps, the Dinarides, the Mediterranean, and the Pannonian Basin). They all confirm that Slovenia is at the intersection of various European macroregions. An examination of European territory classifications prepared by Ciglič [5] and by Ciglič and Perko [6] shows that non-Slovenian researchers also place Slovenia at the intersection of various European landscape categories. With regard to the classifications that were examined in this analysis, it can be concluded that Slovenia is at the intersection of the mountain (Alps and Dinarides), continental (Pannonian Plain), and Mediterranean landscape types (Table 2)

Table 2: Overview of units by individual classifications of Slovenia.

Classification	Portion of all categories in Europe	Categories in the country
Environmental stratification of Europe	3/6	Alpine, Continental, Mediterranean region
European landscape classification	3/8	Alpine, Continental, Mediterranean type
Biogeographical regions	3/10	Alpine, Continental, Mediterranean region
Terrestrial biomes of the World	3/7	temperate coniferous forests, temperate broadleaf and mixed forests, mediterranean forests, woodlands, and scrub

CONCLUSION

The European landscape diversity map exposed more diverse regions that can be also regarded as more attractive and interesting areas for tourist visiting. Since Slovenia is ranked at the top of the list of diversity, we can conclude that the country has important prerequisite for attractiveness – that is proximity to different natural regions or types. Country's position at the border of Alps, Dinaric Alps, Panonnian Plain, and Mediterranean, can offer an experience of different European environments in relatively small area.

The main source of our analysis, the landscape diversity map of Europe [7], was created using relatively simple methods offered by geographic information systems. Its analysis by country showed that as a rule the areas with the greatest landscape diversity are near mountains. The analysis was carried out based officially recognized landscape classifications of Europe, which show various categories of landscapes (regions or types) at the highest level. It is therefore necessary to also be aware that research findings are relevant only at the highest level because it is apparent that within regions at lower levels landscapes can be considerably more or less diverse.

For individual countries that were defined as having the greatest landscape diversity or as some kind of landscape hotspots, it can be concluded that, alongside minimal human development, they have extensive biodiversity, attractiveness for a tourist visit, greater economic potential, and a greater likelihood of utilizing diverse natural resources. Alongside the advantages, it is also necessary to point out the dangers hidden primarily

in the fact that in such regions it is more difficult to transfer best practices from one region to another because regions have different ecosystems that respond differently to various human interventions, which also encumbers regional planning.

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