Landscape research in Slovenia

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La recherche paysagère en Slovénie

Drago Perko and Mimi Urbanc

1 Relative to landscape diversity, only a few, even much larger countries can be compared to Slovenia because on this very tiny piece of Central Europe the Alps, the Pannonian plain, the Dinaric mountains, and the Mediterranean touch and intertwine, as do Germanic, Hungarian, Slavic, and Romanic cultural influences. For this reason Slovenia is renowned for its natural and cultural diversity, geographical variability, and transitional areas. Some consider it a natural geographical laboratory.

2 The Slovene language has two terms for “landscape”: “pokrajina” and “krajina”. A “pokrajina” is a spatial unit, part of the Earth’s surface, a region, a complex of landscape elements, primarily a concept taken from science, while “krajina” is the external appearance, aspect, landscape painting, physiognomy, primarily a concept taken from art. Thus, for example, geographers use the term “pokrajina” while landscape architects use the term “krajina”, even though they mean the same thing with the two expressions (Perko, 1998a, 14). A landscape painter is a “krajinar” in the Slovene language, his painting is a “krajina”, and a landscape architect is a “krajinski arhitekt”, while the parts of Slovene territory, for example, the Julian Alps or Karst (Kras in Slovene language), are called “pokrajina”.

Disciplines and fields of landscape research

3 In Slovenia, geography plays the leading role in landscape research. A pioneering role was played by the geographer Anton Melik, a member of the Slovenian Academy of Sciences and Arts, who published the first regional monograph of Slovenia in four extensive volumes between 1954 and 1960 (Melik, 1954, 1957, 1959, 1960) as well as the first general monograph of Slovenia (Melik, 1963).

4 At Melik’s initiative, the Slovenian Academy of Sciences and Arts founded the Geographical Institute in 1948, and this institute has carried his name since 1976. Almost
half a century later, the Anton Melik Geographical Institute, which now works in the framework of the Scientific Research Centre of the Slovenian Academy of Sciences and Arts, prepared the second regional monograph of Slovenia entitled Slovenija – pokrajine in ljudje (“Slovenia – Landscapes and People”; Perko & Orožen Adamiè, 1998) and the Geografski atlas Slovenije (“Geographical Atlas of Slovenia”; Fridl et al., 1998). Three years later, the Institute also prepared the first national atlas of the country, the National Atlas of Slovenia (Fridl et al., 2001), which was published in Slovene and English versions. All three books contain chapters on regionalization and the typification of landscapes in Slovenia with numerous maps. The Institute has also published numerous other publications about Slovene landscapes.

Another branch of the Scientific Research Centre of the Slovenian Academy of Sciences and Arts, the Karst Research Institute actively studies karst landscapes, primarily the landscape of Kras, the region of Slovenia where research into karst phenomena began on a world scale. Karst landscapes are very frequent in Slovenia since more than one half of its surface is covered by carbonate rock, the basis of karst landscapes.

Also active in the field of landscape studies are the Department of Geography of the Faculty of Arts of the University of Ljubljana – where academician Ivan Gams, author of the university textbook Essentials of Landscape Ecology (Gams, 1986) and several textbooks on the Slovene landscapes with maps of the regionalization of Slovenia (Gams, 1983, 1991, 2001, etc.), lectured for many years – and the Department of Geography of the Faculty of Education of the University of Maribor.

The main topics of studies by Slovene geographers have included the typification and regionalization of Slovene landscapes; landscapes of isolated farms; flood plain and karst landscapes; the influence of natural elements in shaping landscapes; changing land use and types of settlement; the changing of landscapes due to forest overgrowth, depopulation, urbanization, and economic activities (for example, the formation of a lake landscape above former mines); and the evaluation of landscapes relative to protecting the natural and cultural heritage, preserving the national identity, maintaining the ecologic balance, tourism, and other factors.

At the end of the 20th century, landscape architects were also more actively involved in landscape studies, as from certain viewpoints were pedologists, foresters, and agronomists as well.
Table 1. Some basic characteristics of landscape types in Slovenia.

<table>
<thead>
<tr>
<th>Landscape Types</th>
<th>Alpine landscapes</th>
<th>Pannonian landscapes</th>
<th>Dinaric landscapes</th>
<th>Mediterranean landscapes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alpine mountain</td>
<td>Alpine hill</td>
<td>Alpine plain</td>
<td>Pannonian low hill</td>
</tr>
<tr>
<td>Region</td>
<td></td>
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</tbody>
</table>

Landscape types and regions

The main characteristics of Slovenia’s landscapes are determined by Slovenia’s location at the juncture of the Alps, the Pannonian plain, the Dinaric mountains, and the Mediterranean. We can distinguish four basic landscape types and nine landscape subtypes. The basic types are Alpine, Pannonian, Dinaric, and Mediterranean landscapes, while the subtypes are Alpine mountain, Alpine hill, Alpine plain, Pannonian low hill, Pannonian plain, Dinaric plateau, Dinaric valley and corrosion plain, Mediterranean low hill, and Mediterranean plateau landscapes (Perko, 1998a; 1998, Urbanc, 2002).

The regionalization of Slovenia is also linked with the typification of landscapes. The majority of Slovene geographers divide Slovenia into four or five macroregions (the Alps or separately the Alps and Prealpine regions, the Pannonian plain, the Dinaric mountains, and the Mediterranean) that are further divided into forty to fifty mezzoregions.

Stages of landscape development

The long-term processes that shaped Slovenia’s cultural landscapes during various historical periods overlapped and merged through time (see table 2). The period of medieval colonization was particularly significant since during that time the Slovene landscape acquired its most basic features (particularly the shape and arrangement of settlements, and the fields division), which with only partial changes have been preserved to the present day with only partial changes.
## Table 2. Time line of the development of landscapes.

<table>
<thead>
<tr>
<th>Historical period/time frame</th>
<th>Economic/political/social system</th>
<th>Main features</th>
<th>Traces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prehistory/145,000 B.C. to 200 B.C.</td>
<td>Glaciation, shortage of raw materials, sparse settlement</td>
<td>Rare remains of settlements</td>
<td></td>
</tr>
<tr>
<td>Roman and post Roman period/2nd century B.C. to 6th century A.D.</td>
<td>Spread of Roman culture and Latin language, deforestation, start of winegrowing</td>
<td>Road network, cities</td>
<td></td>
</tr>
<tr>
<td>Medieval period/6th century to 15th century A.D.</td>
<td>Settlement of Slavs and medieval colonization</td>
<td>Number of settlements reaches today’s number: nucleate, central, and roadside villages; wooden houses acquire more rooms; field division into blocks, primary furlongs, and strips; isolated farms with enclosures in hill and mountain regions; mountain pasturing; cities as economic, cultural, and political centers; today’s language and dialect mosaic</td>
<td></td>
</tr>
<tr>
<td>Feudalism</td>
<td>Farmer serfs; development of commerce and crafts; beginnings of mining and ironworks (13th century); wage workers; abandoning of agriculture; increasing town population; introduction of new crops: corn, potato, and hops</td>
<td>Reformation of irregular forms of field division into furlongs and strips with a pattern of compact holdings; country and city mansions; monasteries; fragmentation of property; stone houses of wealthy farmers</td>
<td></td>
</tr>
</tbody>
</table>
Modern history/15th century to today

<table>
<thead>
<tr>
<th>Multinational states</th>
<th>Habsburg Monarchy or Austria-Hungary (1500–1918); industrialization (1830); development of transportation (1850); collapse of agricultural commerce and crafts; partition of farm land and decay of villages; collapse of silk-making; decline of winegrowing and intensive introduction of hop farming</th>
<th>Manufacturing and industrial plants; settlements of industry workers; Ljubljana: provincial capital with cultural, educational, and political role; non-farming settlements: wagoners, cottagers, railroad workers, and ironworkers. Types of houses that coincide with former historic division into provinces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turkish Empire, raids (from early 15th to late 17th century), material damage and casualties, migrations, defense system of marches</td>
<td>Depopulation of individual regions; refugee villages in Slovene territory; fortified encampments and churches</td>
<td></td>
</tr>
<tr>
<td>Kingdom of Yugoslavia (1918–1945); emigration; decline of agriculture</td>
<td>Ljubljana: capital of truncated Slovenia, economic core of the new country</td>
<td></td>
</tr>
<tr>
<td>Socialism</td>
<td>Partially executed agrarian reform, majority of farm land remains private property; polycentric development, urbanization, and industrialization; proportion of farmers rapidly decreases; development of transportation network</td>
<td>Small farm properties survive; countryside remains settled; class of part-time farmers; previously large properties are transformed into combines; industrial buildings in the countryside; growing cities; non-farming population dominates rural settlements; uniform semiurban house appears in countryside</td>
</tr>
</tbody>
</table>

Landscape evaluation and future development

Significance of the landscape

The ecological significance of the landscape appears in the preservation of the natural balance. Constant maintenance of the cultural landscape with its many small elements that provide homes for plants and animals is at the same time the best protection against the natural disasters, primarily landslides and floods, that are most frequent in Slovenia.
The preservation of the natural balance is of special importance in the ecologically less stable transition areas that dominate in Slovenia. The direct economic significance of the landscapes lies in the production of food. Slovenia has already passed the critical limit of food security because it has only 0.12 hectares of cultivated field per capita. Relative to the amount of agricultural land, Slovenia is within the European average with 0.44 hectares per inhabitant. However, the picture is particularly pessimistic because almost three quarters of Slovenia’s agricultural land lies in less suitable regions and only one quarter in the plains and valleys (Gabrovec & Kladnik, 1997, 11). The majority of Slovenia consists of rural landscapes with increasing tourism significance because its well-maintained cultural landscapes attract visitors, especially in the mountain and the hilly winegrowing regions. The diversity of landscapes is one of Slovenia’s rare natural assets, since aside from forests it has few natural resources. The cultural-emotional significance depends largely on traditional farm landscapes with finely scattered parcels. Certain formations occupy an important place in the consciousness of Slovenes and are important for their identity since they provide a feeling of belonging and home and show the way to historical roots.

**Threats to the landscape**

13 Rural landscapes encompass the greater part of Slovenia since infertile and built-up regions cover less than one tenth of its surface. Agriculture has given the basic appearance to the landscapes because at the beginning of the 20th century, farmers made up three quarters of the population (Kovačič, 1999, 55). Today, only six percent of the population is involved in farming, and the non-farming population owns a large proportion of the land. The abandoning of farm production, overgrowing, the restructuring of agriculture due to economic and social changes, and urbanization with its housing construction and building of infrastructure objects represent the greatest threats.

14 *Forestation* is linked to negative socioeconomic trends and the shift from the former maximum land use to the optimal land use of today, which leads to abandoning of land with poorer natural conditions, particularly in regions with higher altitudes and steep steeper hill slopes. This is the greatest threat to the Slovene landscape and has already reclaimed more than one tenth of agricultural land and soil. Forests now cover three fifths of Slovenia (Gabrovec & Kladnik, 1997, 33).

15 *Grassing over* can be a consequence of redirecting agricultural production towards cattle into raising cattle or shortages of the lack of a rural labour force. It is occurring in all hill regions as well as on the plains due to the development of cattle raising. The amount of meadowland has increased constantly in the last hundred years.

16 *Depopulation* has affected almost half of Slovenia’s territory since 1961. The population core has shifted in the last hundred years from the hilly Pannonian and Mediterranean worlds to the valleys and plains. Settlements have concentrated in a belt stretching to 400 meters above sea level in which some four fifths of Slovenia’s entire population lived by 1991 (Perko, 1998b 1998d, 283).

17 *Intensification* and *specialization* are characteristic of regions where large-scale land improvement was carried out or where vineyards and orchards were expanded on a large scale, primarily in the naturally most advantageous regions and regions in the immediate vicinity of cities and towns (Gabrovec & Kladnik, 1997, 57).
The deterioration of the architectural heritage has spread throughout the entire country. On one hand is the abandoning of former homes due to migration, and on the other is the introduction of new architectural elements that no longer have any local or regional character but are uniform across Slovenia.

Possible future development

In recent decades, a laissez-faire approach began to appear that will continue, particularly after inclusion in the European Union, if Slovenia is unable to acquire special status in agriculture due to its natural limitations and historic development. Free market policies will further accelerate the differentiation of the countryside, which is already acquiring clear outlines. In naturally more advantageous regions, intensive farming with large-scale cultivation is developing, which requires large consolidated surface areas without disturbing elements (e.g., hedges, free-standing trees, the traditional kozolec or hayrack). Small land division with its cultural riches is disappearing due to monocultural farming. The architectural heritage is disappearing because houses in the countryside and in the city are acquiring a uniform appearance. The production buildings on these farms are moving onto open spaces. A new and uniform type of landscapes without regional or local features is developing. At the same time, the valleys and basins are centres of civilization where numerous activities intertwine and various users of the space compete with each other. First class agricultural land is disappearing due to expressways and the territorial growth of cities. Rural settlements are acquiring the status of suburbs, and the countryside as a whole is acquiring a different role since it is becoming a place of residence and recreation for the non-farming population. The boundaries between cities and the countryside are already quite indistinct in Slovenia. At the same time, the cultural landscape in the greater part of Slovenia is disintegrating, primarily in the low-hill and hill regions. A largely aging population remains on the farms, who are emotionally bound to the land and for the moment still maintain the appearance and function of the landscape with their work. However, further abandonment of agricultural areas is to be expected in future since there are no young people except in areas closer to cities, and these no longer cultivate the land because their education allows them to work in better-paid non-farming jobs. The complete liberalization of the agricultural market would cause a considerable decrease in the number of farms and the gradual emptying of low-hill and remote regions and thus the loss of the identity of the countryside. Relative to the natural and historical heritage, the only acceptable model is the sustainability approach that envisages a development toward the restoration of the landscape with respect to biotic diversity, ecological balance, and the cultural heritage. This concept advocates the preservation of a sufficient number of farms and economic and technological development that would simultaneously respect market laws and the fundamental cultural elements of the landscape. In this way, Slovenia’s cultural landscapes will continue to live as a reflection of former and current human activity.

Figure 1. The kozolec or hayrack is an achievement of folk architecture. Characteristically Slovene, they are used for drying crops and are found most frequently in alpine regions. (Photography: Oskar Dolenc).
Figure 2. The klopotec or wind rattle is a wooden device to drive birds from the vineyards of the Pannonian low hills in Eastern Slovenia before and during the vintage time. (Photography: Milan Klemenèiè).

Figure 3. Ostrnice are thinner tree trunks with branches pushed into the ground on which hay is still dried in some Dinaric regions in Southern Slovenia. (Photography: Matej Gabrovec).
Figure 4. Piran, an old Mediterranean town, situated at the cape of the Piran peninsula, is actually an open air museum with the medieval architecture and rich culture heritage. (Photography: Marjan Garbajs).

Figure 5. Landscape types in Slovenia.
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ABSTRACTS

Slovenia lies at the junction of the Alps, the Pannonian plain, the Dinaric mountains, and the Mediterranean and underwent Germanic, Romanic, Hungarian, and Slavic cultural influences. For this reason, its landscapes are very diverse. We distinguish four basic landscape types (Alpine, Pannonian, Dinaric, and Mediterranean) and nine landscape subtypes (Alpine mountain, Alpine hill, Alpine plain, Pannonian low hill, Pannonian plain, Dinaric plateau, Dinaric valley, Mediterranean low hill, and Mediterranean plateau). The basic appearance of Slovene landscapes was formed in the period of medieval colonization and later changed only slowly. It is distinguished by its diversity, its incorporation in the natural environment, and high ecological and cultural-emotional value. Economic and social developments in recent decades have triggered rapid changes in the appearance and function of the landscape.

Située entre les Alpes, les plaines panoniennes, les chaînes dinariques et la Méditerranée, la Slovénie est dotée d’une grande diversité de paysages. Elle a subi l’influence des cultures germanique, romaine, hongroise et slave. La Slovénie est divisée en quatre principaux types de paysages (alpin, pannonien, dinarique et méditerranéen) et en neuf sous-types (les montagnes alpines, les collines alpines, la plaine alpine, les basses collines panoniennes, la plaine panonienne, le plateau dinarique, la vallée dinarique, les basses collines méditerranéennes et le plateau méditerranéen). Le paysage slovène s’est formé pendant la période de conquêtes du Moyen-Age et s’est depuis lentement transformé. Ce n’est qu’à partir des années soixante-dix du siècle dernier, avec le développement économique et social, que le paysage et sa structure ont subi des modifications plus rapides et importantes.
INDEX

**Mots-clés:** paysage, région, typologie, Slovénie  
**Keywords:** landscape, typology, Slovenia

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