

Landscape Systems in Cartography

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Abstract. In cartography, the visualization of the landscape is the complex representation of the surface of the Earth and the representation of spatial structures according to the scale and purpose of the map. The content and the name of the landscape is specified by giving place names and the names for landscape regions. The maps represent physical geographical, ethnographical and historical-geographical regions. However, their hierarchical structure cannot be shown due to the limitations of the scale.

It is a rule that the names of physical geographical regions and of historical-geographical-ethnographical regions, which form separate categories, are written in different letter types. In cartography, the physical geographical regions are divided into further regions, thus forming new categories of names. The units of physical geographical regions are labelled by two different letter types according to whether they are denudation and accumulation surfaces. These are the names of mountains and hills (features under denudation) and of plains and basins (features of deposition).

It is a convention that the Hungarian names ending in foothills (-alja) form a group of names of transitional regions. This means that the names of landscape regions should be treated in a wider aspect than just the geographical or linguistic interpretation of the general development process of the names of landscape regions.

The term, "landscape" is the object of study not only of geography, but also of other disciplines (ethnography, history). Most often, the cartographer tries to represent them at the same time and to distinguish their types by different lettering. Quite often the landscape names existed before the physical-geographical

landscape itself was defined. Ethnographical landscape names existed before physical-geographical landscapes. In many cases these landscapes were bordered by physical-geographical features, for example within Székely land (Hun: Székelyföld) the closed basins are each an ethnographical landscape (Csík, Háromszék etc...). Székelyland itself is an ethnographical region where the Székely (ger: Sekler) people live that is bordered by mountains. These landscape names officially appeared at first in the boundaries of the regional administration divisions.

The counties in Hungary were based on landscapes. The counties were the basis of special orientation. In the 20th century the borders and names of the counties were altered, partially as a result of the treaty of Trianon, partially as a result of the merger of counties. This resulted in the so-called historical-geographical landscapes. These are former administrative areas of which the names are still in use today. Many counties have disappeared, but the names still get used for the region today. A few examples are Gömör, Bars and Hont. Another example of a historical-geographical landscape is the former province of Galicia in Austria-Hungary. Today the western half is part of Poland, while the eastern part is part of Ukraine. The name still gets used in everyday speech, although Galicia as an administrative entity does not exist today. One would call any name that once used to be the name of an administrative entity and is still used today while the entity does not exist a historical-geographical landscape name, while the area to which it applies is a historical-geographical landscape.

It is important to point out, that a historical-geographical landscape name is not an obsolete name, since it is still in use today. The different types of landscapes get written in different types of letters. In many cases the physical and historical-geographical landscape names coincide. In this case landscape names do not get repeated. It is up to the cartographer which names get used, or have priority on the map. Landscape names used in cartography are researched not only by geographers, but also by other disciplines such as ethnographers and historians.

Keywords: Landscape names, Physical-geographical landscapes, Ethnographic region, Historical-geographical regions, Mountains-hills, Plain-basin transitional region

Foreword

This paper is a translation by János Jeney of the Hungarian paper "Tájrendszerek a Kartográfiában" written by Imre Faragó published the conference proceedings of the HunGeo conference held in Debrecen in 2014. The translation was prepared in co-operation with the original author. In certain instances minor changes were made to facilitate understanding by international audience: in certain cases additions were made where the international audience would not have automatically associated certain facts with the Hungarian language, as were certain points, to enable the reader can localize the places in Hungary. Where Hungarian common nouns are used in the English text, these are explained.

The concept of Landscapes

The concept of landscapes is defined in scientific fields that analyze geographical space and use it as basis of their research. Landscapes can be divided into certain basic categories a few examples being geographic landscape, historic landscape, ethnographic landscape, flora landscape, field (military) landscape etc... Every scientific field uses landscapes according to its own requirements and is biased when setting up categories. Cartography is the scientific field of representing landscapes. In the case where the goal is a general presentation of landscapes, a non-biased approach is used to represent the different landscape categories. This non-biased approach can be found in the legal definition of the landscapes. According to Hungarian law on environmental protection "The landscape is a well defined area on the surface of the earth, bearing a characteristic structure, with natural values and natural systems specific to that particular area, as well as the characteristics of human culture, where an interaction between natural forces and artificial elements can be found." A simpler definition states the landscape is an area defined by people that have common characteristics as a result of natural circumstances and/or human activity. Thus the landscape is an entity formed by natural and anthropogenic impacts and one that shows development through time. On the other hand every balanced definition of landscape that takes every aspect of the landscapes into consideration, is a theoretical approach which is rarely used in everyday practice. In everyday use mostly the physical-geographical

landscapes are used. These are used in basic education and the media, making them best known to the public. The basis for the boundaries of the physical-geographical landscape are physical-geographical features, which at the same time reflect the impact that the local population had on the landscape.

Cartographic Landscapes

In cartography the aim of representation of landscapes is the complex representation of the surface that is in accordance with the scale and purpose of the map. Hence the significance of landscapes in cartography is unique, as the graphic representation of the surface of the earth is in itself a representation of landscapes by showing the natural (relief features and vegetation) and artificial features (settlements, roads, railways) of the terrain. The mapmaker has to represent the terrain in such a way that the user can obtain an accurate picture of the terrain in his/her head by using only the map. The user should be able to see the landscape and its features with the help of the map. The sight of the map with all its symbols should not only be a visualization of graphic representation, but its information should become "alive", that in accordance with the scale of the map should create a picture of the landscape in the mind of user and give information about the characteristics of the landscape. This can be achieved by adding landscape names to the map. By adding a name to a landscape of the map, that landscape can be seen by the user. The name gives a unique, individual entity to the landscape already represented by the map symbols and the relief representation, separating it from the rest of the map.

The concept of landscape names in cartography is narrower than in the general sense. Not all names representing a particular area on the map are landscape names. Any area names appearing on maps with scales larger than 1:100 000 are not regarded as a landscape names. These are fields of villages and are called micro toponyms. Only names indicating larger areas are referred to as landscape names. Up to the nineteenth century landscape names, similarly to place names and micro toponyms, were of natural origin, as they came into being through the locals giving names to a certain areas. Landscape names, where landscapes have exact boundaries originate in the twentieth century, when all parts of the surface were made part of a landscape and was given

a name. These were a result of geological and physical-geographical surveys carried out during the twentieth century. About hundred years ago the physical-geographical landscape divisions started to be developed which gave every piece of ground a landscape name and which placed these names into a hierarchy. The physical-geographical landscapes became geographical entities which were split into smaller entities. These landscapes and their boundaries are in a common system: a landscape referring to a valley is always between two mountain ranges, while a landscape referring to a mountain range is always between two valleys. It always depends on the features of the landscape if the mountain range, the valley or both appear in the scientific definition of the landscape. The most important effect of the landscape hierarchy and the landscape boundary appears in cartography. This helps the cartographer to decide which landscapes need to appear on the map, how they should appear, and what significance should be given to them. As a result of the hierarchical structure, the heterogeneity of the terrain is always higher up in the hierarchy. The boundaries of the landscapes in the different hierarchical levels are defined by the landscape features, usually natural features. When defining the hierarchical system, the names that evolved over the centuries were usually used, but in some cases artificial names had to be erected because of the hierarchical structure. This can be seen in figure 1.

Physical-geographical Landscape names

Resulting from the scale of the map, all levels and details defined in the landscape hierarchy cannot be shown. The map maker has to select which names to put on the map. The first aspect is the fact that the scale does not allow all names to fit on the map, so the mapmaker needs to decide which names will be shown on the map, and which one will not. The next aspect is that all names not needed by the theme and purpose of the map should be left off. Further, the artificial names created on a geological and geomorphological basis that are not used in everyday language are not usually shown. For example in Hungarian *Dunazug-hegyvidék*, *Kelemen-Görgény-Hargita-hegyvidék*. Often names appear on the map that are different to the official names defined in the landscape system. This is done for the better understanding by the public, as well as making the names more legible. For example, *Börzsöny-vidék* is annotated *Börzsöny*. Often

the common noun used in the geographical name is simplified. An example in Hungarian is the use of the word *sík* instead of *magassík* (*sík* means plane, while *magassík* means plateau). As a result, parallel to the physical-geographical landscape system, a cartographic landscape system came in being that was adjusted to the vocabulary of the general public. The landscape names have been selected on the basis of the hierarchy of the physical-geographical landscape names. Similarities with the original landscape hierarchy can be seen, but the original landscape hierarchy does not appear in this system. In such a way a cartographic landscape system was created that shows the landscape names in accordance with the requirement of the graphic spatial representation of the landscapes, but has no hierarchy.

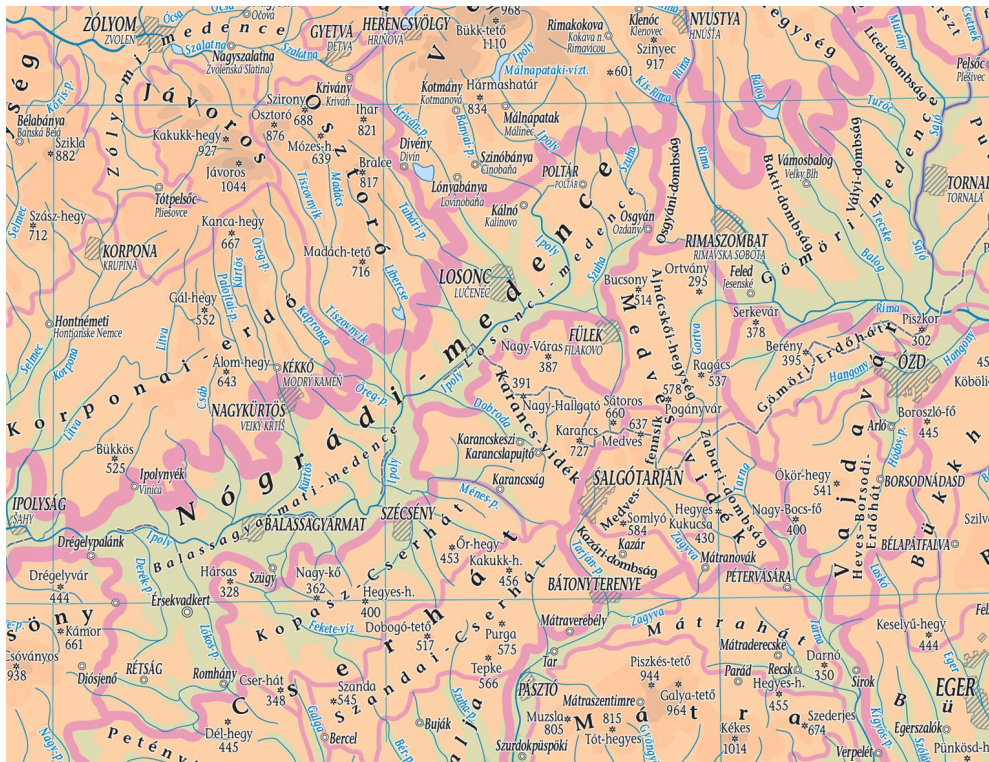


Figure 1. Map showing borders of Physical-geographical landscapes at a scale of 1:850 000. Almost all Physical-geographical Landscape names are shown on the map (Map made by original author)

Ethnographical Landscapenames

Some landscape names cannot be inserted into the hierarchy discussed above. Their creation was independent, or partially independent of physical-geographical features. In the case when a landscape is defined by a characteristic of the people living in the area (language, religion, traditional way of life) it is an ethnographic landscape. If the landscape was created as an administrative entity (this is the case when the entity does not exist anymore, but the name continues to be used) it is a historical-geographical landscape. The ethnographic and historical-geographical landscape names were created before the scientific approach to physical-geography was created and therefore before physical-geographical landscape names were created. They were created spontaneously by the general public as a result of general observation of geographical space as well as the though the segregation of different groups within the society. These landscapes are the basis of the physical-geographical landscapes, especially as far as the naming of the landscapes is concerned, the ethnographic landscape names created by the locals and the historical-geographical landscape names that were in use for centuries appear in the names of the physical-geographical landscapes.

The basis of ethnographic landscapes are the anthropogenic features, at the same time in many cases their boundaries were erected based on physical-geographic features. In *Székelyföld* in Transylvania the high altitude basins, *Csík*, *Gyergyó*, *Háromszék* etc, each make up an ethnographic landscape. *Székelyföld*, the Hungarian name of the area where the Székely people live, makes up one large ethnographic landscape. The basins of *Székelyföld* are at the same time the physical-geographical landscapes. For example *Csíki-medence*, *Gyergyói-medence*, *Brassó-Háromszéki-medence* etc. (*medence* in Hungarian means basin). The geographical-geological approach gives each part of a particular landscape an artificial name. This is a different approach to the one based on the ethnographic landscapes, but at the same time is similar to the approach which bases the landscape names on ethnographic landscape names. It also tries to build a hierarchy on top of the landscape names of what we refer to as landscapes in a cartographic sense, the micro toponyms appear. This paper does not deal with these names as in cartography they make up a separate category.

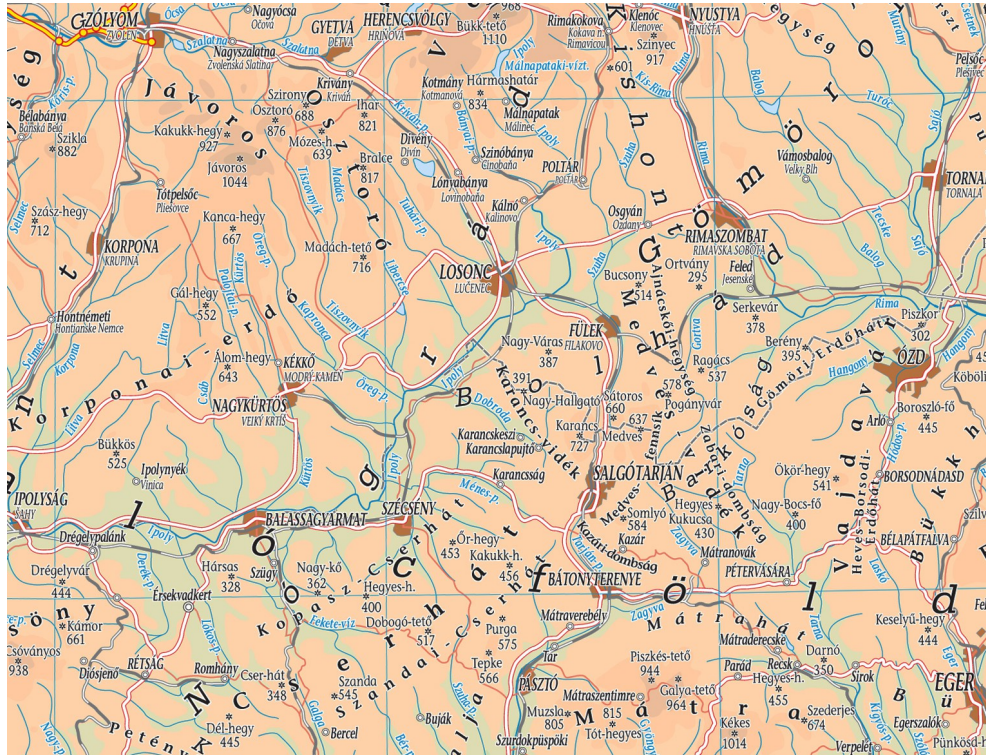


Figure 2. General-geographical map at a scale of 1:850 000 with selected physical-geographical landscape names. Historical-geographical landscape names have been added (Map made by original author)

Historical-Geographical Landscape names

The landscape systems based on administrative systems first appeared in the national administration itself. In Hungary this system was a result of an administrative system that divided the country into counties for over a millennium. The basis of the landscapes were the counties that existed as active administrative entities. In the twentieth century the county system underwent large territorial changes. Changes to the names of the counties also took place. In part these were caused by the changes to the country's borders enforced by the Peace Treaty of Trianon, while in part by changes in the modern administration system. As a result, the boundaries and names of the counties and the landscapes no longer coincided. This brought about the historical-geographical landscape names. These are names of administrative entities that

no longer exist, but the name is still used today. These are called historical-geographical landscape names. People living in areas where the former county no longer exists or has been integrated into another county use the names of the former county and refer to it as a landscape. The names of the former counties of *Gömör*, *Abaúj*, *Bars*, *Hont*, *Zemplén*, *Zaránd* are still used by the locals today, even though these counties no longer exist as administrative entities. The former province of the late Austro-Hungarian Monarchy *Galicia* ceased to exist as an administrative entity in 1918. After the First World War it was integrated into Poland, and after the Second World War the western part remained part of Poland, while the eastern part became part of the Soviet Union. After the collapse of the Soviet Union it became part of Ukraine. In both countries smaller administrative entities were formed. In Poland the Voivodeships, in Ukraine the provinces form the top level of the administration. The boundaries of these entities do not follow the lines of the former province of *Galicia*. Despite this, the term *Galicia* is in everyday use. Today it is not an administrative entity but a landscape that has its own boundaries, namely a historical-geographical landscape. Similarly the former Austrian provinces like *Moravia*, *Silesia*, and *Bukovina* are also historical-geographical landscapes. From these examples it can be seen that after an administrative entity ceases to exist its name continues to be used. This is due to tradition or because the people living there have a sense of belonging towards one another. Hence its name that is actively in use today, is not only part of everyday use, but is also part of the toponymy used on modern maps, similarly to the physical-geographical landscape names.

Cartographic Landscape Systems

In the practice of mapmaking two categories are used for the landscape names. One category is used for physical-geographical landscape names, while another for ethnographic and historical-geographical landscape names. This makes it possible for two landscape system to co-exist on a map, while their parallel use shows correlation between the two systems. It is important that the same name should not appear in both categories on the map, so if physical-geographic and ethnographic or historical-geographical landscape has the same name it is up to the cartographer in which category the name gets represented on the map. Usually the physical-geographical features get priority and in this

case such names are put on the map as physical-geographical landscape names. This is used on general geographic maps and tourist maps. If the theme of the map is to show the ethnographic or human geographical characteristics of the area, these names are represented as ethnographic or historical-geographical landscape names.

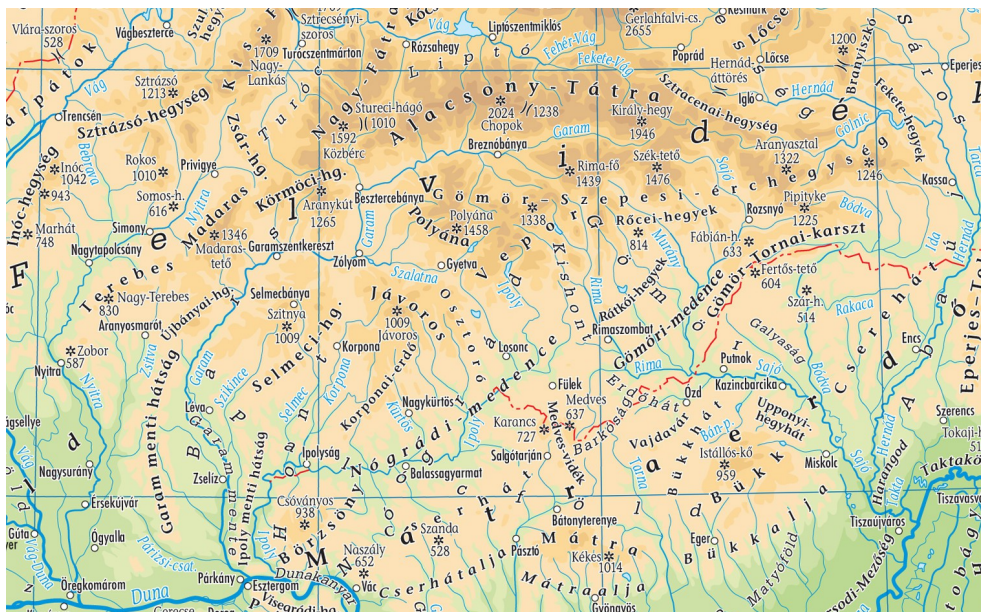


Figure 3. Map at a scale of 1:2 000 000. The names of mountains and hills are shown in bold type, names of plains and basins are in bold-italic type and the names for ethnographic and historical-geographical landscape names are shown in italic (Map made by original author)

In cartographic representations these two basic categories only give us a theoretical separation of the landscape names. In practice, for reasons of tradition and in the interest of better legibility, the physical-geographical landscape names get split into further categories. The physical-geographical landscape names get split into two categories: one for landscapes that are being eroded, while another for landscapes that are filling up. As a result landscapes that have an elevation while being eroded are the names for mountains and hills, while the names for landscapes that are filling up are names for planes and basins. The names referring to the foot of hills or mountains, as well as names of landscapes of a transitional nature also belong to the latter category. Landscape names of islands and peninsulas form a separate cate-

gory, that only gets used to refer to landscapes made up of islands or peninsulas. This category is often merged with the category used for names referring to planes and basins.

The interpretation of landscape names in cartography shows a broader system than the general development of landscape names or the system used in the linguistic approach. Hence the concept of the landscape in cartography is not only associated with geography, but also with other scientific fields such as ethnography and history. The cartographer aims to represent all categories on a map, but using different type faces to separate these categories from one another.

Biographical Note

Imre Fagaró was born in Budapest on 4 August 1968. He earned his degree in cartography and hydrology in 1992. Since 1992 he works as a cartographer. He was the editor of several world atlases, history atlases and mass-produced maps published in Hungarian. From 1996 he was a guest lecturer in cartography at the Eötvös Loránd University and from 2004 he is a full time lecturer in the Department of Cartography at this University. He lectures the following subjects to Bachelor undergraduates: Geographical names, Cartographic Geography, The Basics of Cartographic Representation. He also presents lectures in Mapmaking and Map Design, Cartographic Publications, Preparing and Editing of History Maps to Masters students of Cartography and Geoinformatics. His field of research is Landscape systems, Landscape name research, Hungarian geographical names, linguistic connections of geographical names.

János Jeney was born in Durban, South Africa. He obtained his degree in Cartography at the Eötvös Loránd University in Budapest, Hungary. At present he is working on his PhD thesis at the Eötvös Loránd University in Budapest, Hungary and the Technical University in Dresden, Germany. He is aiming to earn a PhD degree awarded jointly by both universities. The area of his research is the methods used on ethnographic maps of Austria-Hungary which were made in the second half of the nineteenth and the first half of the twentieth centuries, with special attention to the multi-ethnic regions of lands formerly comprising Hungary. He teaches the History of Cartography at the Technical University of Dresden to English speaking students since October 2013. He is a

member of the German Society for Cartography (Dgfk) and the Hungarian Society of Surveying, Mapping and Remote Sensing (MFTTT). He speaks fluent English, Hungarian and German.

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¹Parts seen in figures 1 and 2

²Part seen in figure 3