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Visual historical gazetteer of Romania's Nord-Vest development region

Keywords: visual historical gazetteer, Nord-Vest development region, settlement network, written records, database construction, web cartography

Summary: Whereas a gazetteer is a work dedicated to facilitate the identification of geographical features of a certain area, a historical gazetteer aims to synthesize the allonyms of geographical entities occurring over time, occasionally supplemented by additional information, such as administrative affiliation.
Previously, historical gazetteers were published as textual materials. The technological progress, however offers numerous opportunities for communicating data digitally, as well as visualizing historical geospatial information.
This paper focuses on the development of a visual historical gazetteer covering the territory of Romania's Nord-Vest development region (consisting of 6 counties), featuring almost 2500 localities, as part of a broader research intended to unveil the evolution of the settlement network of modern-day Transylvania throughout history.
This visual historical gazetteer, based exclusively on the written records of the settlements, aims to display the localities that existed in each year of the last millennium, along with their names used in contemporary documents, their contemporary legal status and administrative affiliation. As Nord-Vest development region consists of both territories historically part of Transylvania and territories historically belonging to the Kingdom of Hungary, which have thus evolved differently over time, it serves as representative sample to illustrate the concept behind the broader research.
The purpose of such a work is to serve as a user-friendly, yet reliable source for research regarding the settlement network of modern-day Transylvania. It is intended to be useful for creating historical maps about Transylvania, for examining the content accuracy of old cartographic works representing the area, as well as conducting linguistic and historical research concerning the Transylvanian localities.

Introduction

The rich history of the Transylvanian settlements has been the subject of a wide variety of scientific materials so far. Written records of the localities, the basis for the reconstruction of the settlement network of different time periods, are often compiled in such works. Technological progress offers numerous opportunities of communicating such kind of historical data digitally, or even visually, which are barely exploited even at international level, let alone in the case of Transylvania. This study is a partial result of a research aiming to systematize the written records of the Transylvanian localities collected in scientific works to develop a web cartographic material visualizing the evolution of the settlement network of modern-day Transylvania. The web map elaborated as part of this work, entitled the visual historical gazetteer of Romania's Nord-Vest development region, serves as a representative sample to illustrate the concept behind the broader research, highlighting the changes occurring in the settlement network over time of a territorial-statistical entity characterized by historical diversity.

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Study area

The development regions of Romania are the territorial support for the implementation of regional development policies, without having any administrative role, however. The development regions correspond to the NUTS 2 level of division and are typically made up of 4-7 counties (Săgeată 2006: 86-87).

Nord-Vest development region consists of 6 counties: Bihor, Bistrița-Năsăud, Cluj, Maramureș, Sălaj and Satu Mare (see Figure 1). Like other development regions, it is an artificial structure, that has been established without taking into account geographical, historical, economic and cultural traditions (Bajtalan 2013: 75).

Historically, the territory of the development region was part of the Kingdom of Hungary, parts of it (the area of Bistrița-Năsăud and Cluj, as well as some parts of Maramureș and Sălaj), however, belonging to Transylvania (see Figure 1), a province enjoying relative autonomy within the kingdom (Kristó 2003: 114-115).

The independent Principality of Transylvania, existing at the end of the 16th and during most of the 17th century, incorporated even more territories (Bihor and other parts of Sălaj) of the development region, the term *Partium* emerging to mark the areas part of the principality, but not of the former province, the so-called *historical Transylvania* (Bartos-Elekes 2020: 63, Oborni 2016).

For short periods of time even the area of Satu Mare and the western part of Maramureș fell under Transylvanian rule, becoming a part of Partium. During these times the entire territory of the development region was administered by the Principality of Transylvania (Oborni 2016).

Figure 1: Nord-Vest development region in modern-day Transylvania

After Transylvania lost its independence at the end of the 17th century and became a realm of the Habsburg Empire, most of Partium was once again integrated in the Kingdom of Hungary, some parts (mainly in Sălaj today), however, remained under Transylvanian administration until the second half of the 19th century, when Transylvania became integral part of the kingdom (Bartos-Elekes 2020: 63).

The territory of the development region was transferred from Hungary to Romania after the First World War and remained under Romanian rule since then, apart from a few years during the Second World War, when the area was split up between the two countries. The development region is part of the so-called *modern-day Transylvania*, a concept that includes all the territories that were formerly part of Hungary, but now belong to Romania (Hajdú-Moharos 1997: 6, 14).

Background

A gazetteer is a "*list of toponyms arranged in alphabetic or other sequential order, with an indication of their location and preferably including variant names, type of topographic feature and other defining or descriptive information*" (Glossary 2002). A gazetteer is dedicated to facilitate the identification of geographical features of a certain area.

A historical gazetteer, on the other hand, aims to synthesize the allonyms of geographical entities occurring throughout history, occasionally supplemented by information concerning other characteristics of the geographical features that may have changed over time, such as administrative affiliation.

The concept of a visual historical gazetteer did not exist until now. Based on the above, such a work would be a spatiotemporal representation of the historical evolution of the geographical entities, indicating the name and potentially other attributes of geographical features at different points in history.

The visual historical gazetteer of Romania's Nord-Vest development region focuses on the settlements of the study area. The gazetteer uses web cartographic tools to visualize the evolution of the settlement network of the development region by displaying the localities that existed on its territory in each year of the past 1000 years, along with their names used in contemporary documents, their contemporary legal status and administrative affiliation, all derived from the written records of the settlements collected from various scientific materials.

The most important such works are the historical gazetteers of Szabó (2003) and Varga (1998–2002). The visual historical gazetteer is in fact based on the former, as it processes the written records (dating back to even as early as the 11th century) of around 5800 different settlements that existed on the territory of modern-day Transylvania throughout history and provides data on the changes in the administrative role and affiliation of the localities. In terms of the changes occurring over the last century, the work of Varga is somewhat even more significant, as, unlike Szabó, it covers the current settlement network of modern-day Transylvania in its entirety.

In addition to these, there are a number of other, mainly regionally relevant materials that can provide useful information for the creation of the visual historical gazetteer. All in all, a vast amount of knowledge can be accumulated about the settlements of the study area from the scientific literature. Until now, this was only available in text format. Through the elaboration of the visual historical gazetteer this huge amount of data is intended to be transformed into a visual representation of the evolution of the settlement network of the study area.

Methods

The creation of the visual historical gazetteer was preceded by the systematization of the information available. A geoinformatic database, containing general information on the localities of the entire territory of modern-day Transylvania, such as the current official name, legal status and administrative affiliation, the year of the first written mention, the unique identifier, as well as the source material providing the data has been constructed[1] (Magyari 2024). Geographic coordinates have been assigned to each settlement using the QGIS open-source geographic information system software.

	id	NEV_ELP_X	NEV_HU_X	NEV_RO_X	TIPUS_X	KOZIG_X	ELSO_EML	UTOLSO_EML	FORRAS_A	FORRAS_B	FORRAS_LOK
6476	63759	NULL	Kézdivásárhely	Târgu Secuiesc	MJV	Kovászna megye	1407	NULL	Szabó	NULL	NULL
6477	63759A	Kanta	Kézdivásárhely	Târgu Secuiesc	B	Kovászna megye	1502	1849	Szabó	NULL	2KAT
6478	63759B	Kézdioroszfalu	Kézdivásárhely	Târgu Secuiesc	B	Kovászna megye	1567	1956	Szabó	NULL	2KAT
6479	28521	NULL	Asszonyvására	Târgușor	F	Bihar megye	1203	NULL	Szabó	NULL	NULL
6480	59577	NULL	Kékesvásárhely	Târgușor	F	Kolozs megye	1326	NULL	Szabó	NULL	NULL
6481	22772	NULL	Tarhavaspataka	Târhăuși	F	Bákó megye	1956	NULL	Szabó	NULL	NULL
6482	29494C	Panasz	Köröstarján	Tărian	B	Bihar megye	1214	1599	Jakó	NULL	2KAT
6483	29494A	Györk	Köröstarján	Tărian	NB	Bihar megye	1220	1294	Györffy	NULL	Györffy
6484	29494B	Mindszent	Köröstarján	Tărian	B	Bihar megye	1332	1337	Györffy	NULL	2KAT
6485	29494	NULL	Köröstarján	Tărian	F	Bihar megye	1341	NULL	Szabó	NULL	NULL
6486	29494D	Tóttelek	Köröstarján	Tărian	NB	Bihar megye	1465	1516	Jakó	NULL	Jakó
6487	6912	NULL	Ţarina	Ţarina	F	Fehér megye	1956	NULL	Varga	NULL	NULL
6488	35161	NULL	Felsőilosva	Târlișua	F	Beszterce-Nasz...	1334	NULL	Szabó	NULL	NULL
6489	42012	NULL	Tatrang	Tărlungeni	F	Brassó megye	1367	NULL	Szabó	NULL	NULL

Figure 2: Detail of the core database (Magyari 2024)

This core database has been expanded with fields containing a list of data pairs consisting of the year and type of changes occurring in the name, legal status, administrative role and affiliation of the almost 2500 localities that existed on the territory of Nord-Vest development region over time (see Figure 3).

[1] In order of mention, the data enumerated is stored in the following fields of the core database seen on Figure 2: *NEV_RO_X*, *TIPUS_X*, *KOZIG_X*, *ELSO_EML*, *id*, *FORRAS_A.*

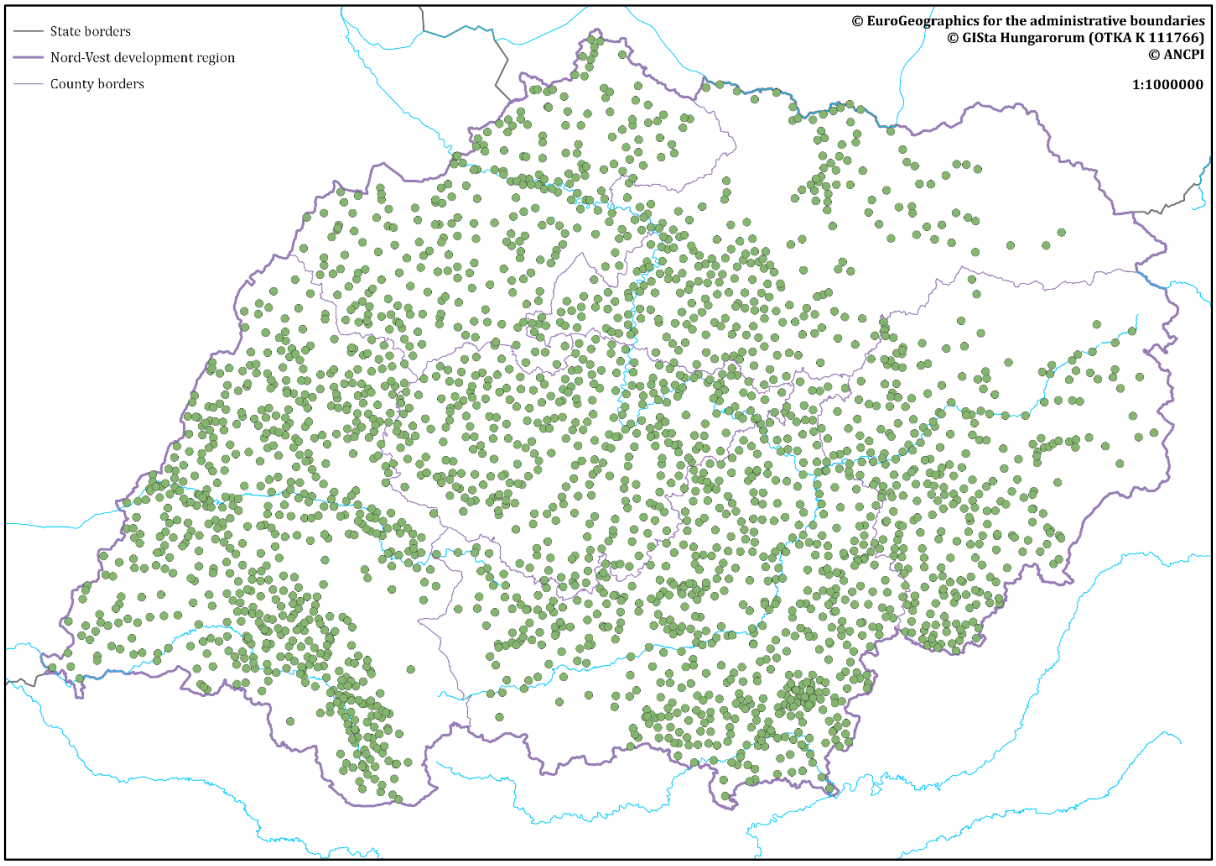

Figure 3: Spatial distribution of the settlements existing on the territory of Nord-Vest development region included in the study

The elements of these data pairs (see Figure 4), referring to the type of changes, are often replaced by abbreviations, the equivalents of which have been specified in secondary tables of the database. The Leaflet JavaScript library, used to develop the visual part of the gazetteer is, however, able to interpret this way of communicating the data, which is, in addition, concise and transparent as well.

Feature	Value
nordvest	
nameSup	Oradea
(Derived)	
(Actions)	
id	26573
county	Bihor
rank	7
type	9
supCode	26564
nameSup	Oradea
ELSO_EML	1068
UTOLSO_EML	NULL
NEV_ELP_X	NULL
NEV_HU_X	Nagyvárad
NEV_RO_X	Oradea
NEV_E_X	Grosswardein (de), Groysvardayn (ji), Wielky Waradyn (pl), Veľký Varadín (sk), Велики Варадин (sr)
LINK	https://www.arcanum.com/hu/online-kiadvanyok/ErdelyHelysegnevTar-erdely-bansag-es-partium-torteneti-es-kozigazgatasi-helysegnevtara-1/telepulesek-1C9/o-F67/oradea-FB6/
NEV_VALT	Várad (Varad →), 1715: Nagy-Várad, 1913: Nagyvárad, 1919: Oradea mare, 1925: Oradea, 1940: Nagyvárad, 1945: Oradea
TIPUS_X	MJV
TIPUS_VALT	F, 1234: CIV, 1780: OPP, 1808: CIV, 1870: TJV, 1919: MJV, 1940: TJV, 1945: MJV, 1950: REG, 1968: MJV
IG_VALT	N/A, 1870: MSZ, 1950: TSZ, 1968: MSZ
KOZIG_X	Bihar megye
KOZIG_VALT	BHV, 1660: NVI, 1692: BHV, 1785: NVK, 1790: BHV, 1849: NVK, 1860: BHV, 1919: BH, 1938: KOR, 1940: BHV, 1945: BH, 1950: BHT, 1952: NVT, 1960: KVT, 1968: BH
FORRAS_A	Szabó
FORRAS_B	NULL
FORRAS_LOK	NULL
MEGJ	NULL

Figure 4: Fields containing lists of data pairs consisting of the year and type of changes occurring in the name (*NEV_VALT*), legal status (*TIPUS_VALT*), administrative role (*IG_VALT*) and affiliation (*KOZIG_VALT*) among the data of the city of Oradea

The program code elaborated in this JavaScript library contains a variable, the value of which is dynamic and always corresponds to the year set on the user interface of the gazetteer. Each time the

value of this variable changes, a query (see Figure 5) sorts out those settlements, the first written mention of which dates back to an earlier, while the eventual last written mention to a later year than the one corresponding to the value of the variable, the settlement network of which being thus revealed.

```
function evszuro(feature) {
    var p=feature.properties;
    if (pusztaszuro(feature)!='P'){
        return (p.ELSO_EML<=datum && (p.UTOLSO_EML>datum || !p.UTOLSO_EML));
    }
}
```

Figure 5: Detail of the program code responsible for sorting out the settlements documented to exist in the year set on the user interface of the visual historical gazetteer

Style properties are also defined in the program code for each type of change occurring in the settlement network over time. The value of the variable is compared to the year elements of every list of data pairs included in the database (see Figure 6), the display settings of the type paired with the year that is the immediate lower neighbour of the variable in each list being assigned to the appropriate localities.

```
function cimke(layer) {
    var p=layer.feature.properties;
    var evek=[];
    var nevek=[];
    var tomb=p.NEV_VALT.split(",")
    var elso=tomb[0];
    tomb[0]="895: "+elso;
    for (i in tomb) {
        var parok=tomb[i].split(":");
        evek.push(parseInt(parok[0]));
        nevek.push(parok[1]);
    }
    var szamlalo=0;
    for (j in nevek) {
        szamlalo+=1;
        if (!evek[szamlalo]) {
            return nevek[szamlalo-1];
        }
        else {
            while (datum<evek[szamlalo]){
                return nevek[j];
            }
        }
    }
}
```

Figure 6: Detail of the program code responsible for assigning the name corresponding to the year set on the user interface of the visual historical gazetteer to the localities based on the list of data pairs concerning the settlement names recorded in the database

A GIS database of the administrative divisions existing on the territory of the study area throughout history has also been created, in which the different extents of the administrative units are stored in separate records, the time of their existence, as well as their name being specified (see Figure 7). The administrative units have been vectorized using other GIS databases containing settlement

boundaries of different time periods, as well as georeferenced old cartographic works. Source materials used for this purpose are listed on the user interface of the gazetteer.

NEV	ELSO_EML	UTOLSO_EML
Maramureș	1919	1924
Maramureș	1925	1937
Maramureș	1945	1949
Maramureș	1968	*NULL*

Figure 7: Detail of the database of the administrative units existing on the territory of the study area

The visual historical gazetteer

The web map serving as the visual part of the gazetteer can be found under the following address: https://mercator.elte.hu/~magyarim/nordvest/nordvest.html. As it is not yet optimized for mobile devices, it is recommended to access the link on a desktop computer or a laptop.
The default state of the web map shows the current settlement network of the study area (see Figure 8). The content displayed on the screen is, however, dynamic and can be altered with the help of the user interface. In order to examine the settlement network of the study area in force in a specific year of history (from 1000 AD onwards), the user has the opportunity to either enter the desired year in the text box or move the slider of the timescale to the appropriate position. Once the user has modified the content of the web map, the year that corresponds to the state of the settlement network shown on the screen will appear in the text box and will change with each alteration. The web map, on the other hand, will reveal the localities documented to exist in the year set by the user (see Figure 8), along with providing some information about their contemporary name, legal status, administrative role and affiliation:

- *name:* official settlement names are indicated since 1873, when the first official gazetteer that includes the entire study area was published (Bartos-Elekes 2013: 113). Prior to 1873 the predominantly used settlement names in contemporary documents are displayed, the first and last written form of every distinctly different name variant being emphasized, in order to illustrate to some extent, the evolution of the settlement names as well.
- *legal status:* is marked by the size of the settlement symbols. Cities and towns are displayed with larger symbols than villages, regardless of the time period portrayed. The symbols refer to the actual legal status only since 1870, when the legal classification of the settlements of the study area started to be regulated (Pál 2016: 243-244). Prior to that they indicate the term that was predominantly used in contemporary written records to describe the legal status of the localities.
- *administrative role:* is marked by the underlining of the settlement names. It is not indicated prior to the regulation of the legal classification of the settlements that started in 1870.
- *administrative affiliation:* is marked by the boundaries of the administrative units. Although throughout the Middle Ages, a generalized, late 15th century state of the administrative division of the study area is displayed, because of lack of information in what regards the exact extent of the administrative units in earlier centuries, during the modern era the web map tries to depict the administrative units as accurately as possible.

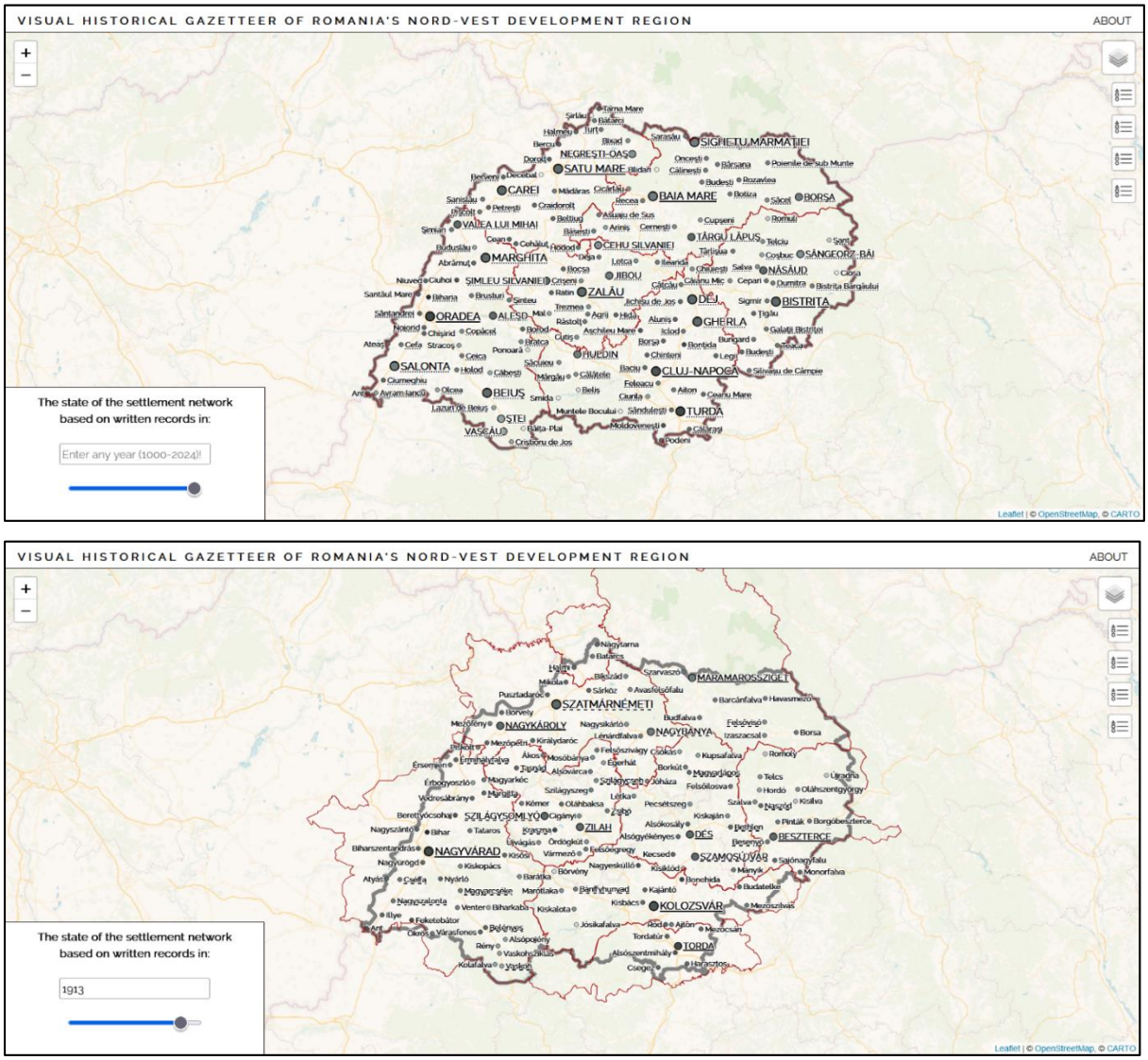

Figure 8: The default state of the visual historical gazetteer showing the current settlement network of the study area (top); the settlement network of the study area before the First World War (bottom)

The administrative affiliation and legal status of the localities corresponding to the year set on the user interface are also indicated in text form in the popup window that appears by clicking on the settlement symbols. Additionally, the popup window features a set of general data on the settlements, including their current official, Romanian-language name and name variants in other languages, their current administrative affiliation, the year of their first written mention, as well as a link that guides the user to the article dedicated to the given settlement in the main source material providing data on them (see Figure 9), which enables the carryout of even more thorough research on the localities.

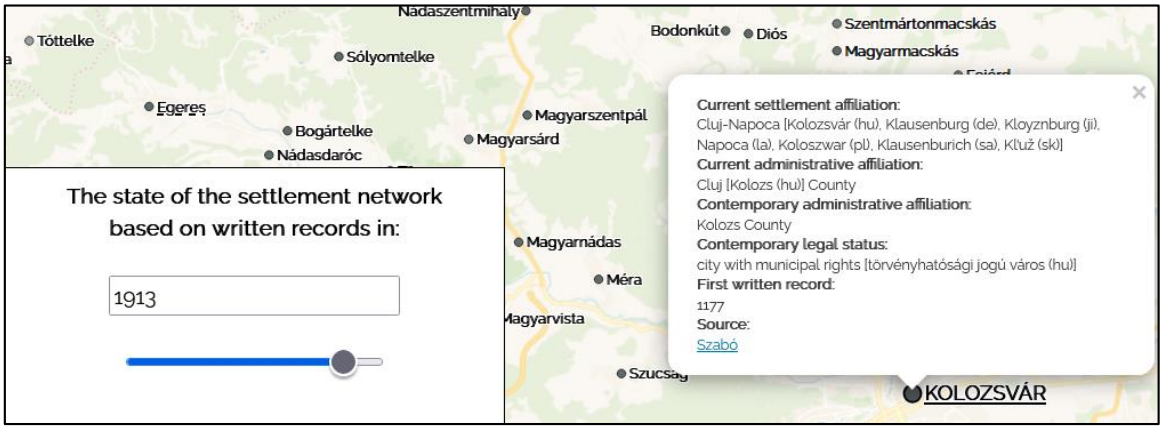

Figure 9: Content of the popup window assigned to the settlement symbol of Cluj-Napoca while the year set on the user interface of the visual historical gazetteer is 1913

The settlement symbols are filled with different shades of the colour grey, in concordance with the first written mention of the localities: the darker the shade used, the earlier the settlement has appeared in historical documents. The outline of the symbols, on the other hand, indicates whether the settlements still exist or have already disappeared. Localities part of today's settlement network are marked by black, while settlements that do not exist anymore by red or pink-outlined symbols, depending on whether their location is accurately or only approximately known.

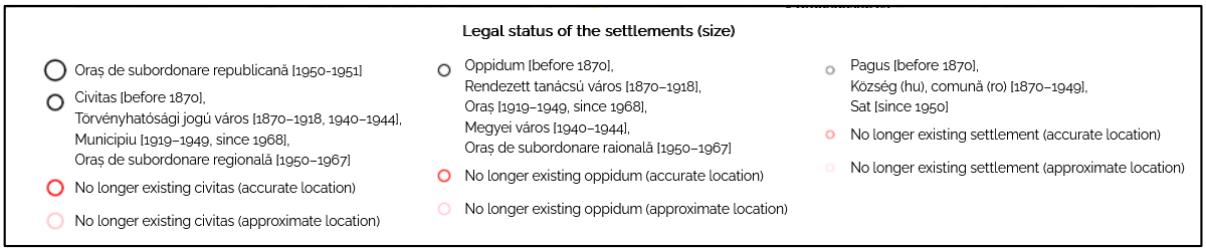

Figure 10: Legend explaining the meaning of the size and the outline of the settlement symbols of the visual historical gazetteer

The boundary of the study area is marked constantly with a grey line symbol (see Figure 8). In historical periods, when the study area was split up between multiple states, state boundaries are indicated as well. The use of the web map is aided by the legends explaining the meaning of the symbols discussed above, as well as the user guide found under the *About* tab.

The user is able to choose between three zoomable and movable base maps to serve as the background for the content to be displayed, all free-to-use. Two of the implemented base maps (CARTO Voyager, Stamen Terrain) are label-free to increase the legibility of the web map. The advantage of the former, which serves as the default base map, is the use of less intensive colours, while the one of the latter the omission of most artificial elements of the earth surface. OpenStreetMap can be selected as well, primarily in order to compare the content of the web map with the present-day state of the settlement network.

Conclusion

Even though the visual historical gazetteer is already functional to some extent and can even be used for research regarding the settlements of the study area and their history, which would in fact

be the main point of the work, its user experience needs to be optimized. Providing the opportunity to search between the settlements should be one of the main improvement targets, as it would greatly facilitate the use of the web map. Improving the operational speed of the web map could be achieved by performing a program code optimization process. Besides English, Romanian and Hungarian, perhaps even German-language user interfaces should be designed, in order to reach as many likely users, as possible. A series of minor errors, regarding the administrative boundaries of certain time periods, for example, need to be corrected as well. To make the material more interesting, a feature simulating the evolution of the settlement network of the study area could also be developed.
The gazetteer is set to be expanded to cover the entire territory of modern-day Transylvania. The data of Transylvanian settlements not included in the present study need to be processed accordingly, based on the methodology developed so far. The purpose of a work of this kind is to serve as a user-friendly, yet reliable source of research concerning the settlement network of Transylvania, a region characterized by diversity and multiculturality throughout its rich history. Creating maps that highlight some aspects of this diversity, as well as conducting historical and linguistic research about the Transylvanian localities could all be aided by such a material.

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