

SETTLEMENTS IN PRAHOVA COUNTY. GIS ANALYSIS OF TOPONYMY

IONUȚ TUDOSE¹

ABSTRACT. - Settlements in Prahova County. GIS analysis of Toponymy. This paper proposes a method of using GIS tools in spatial analysis of the oikonyms in Prahova County, in order to identify specific links between names and geographical or historical characteristics of the area. In the present paper two types of analysis were performed. The first one was made on oikonyms sorted by suffixes, yielding results of their frequency in the territory. The second one was made on oikonyms composed with word "Valley", establishing the link between their distribution on one side and the character of the valley for studied settlements, on the other side. The results show that territorial analysis of oikonyms can clarify spatial aspects, needed for the affirmation of national, historical and social identity.

Keywords: settlements, Prahova, analysis, GIS, toponymy, oikonyms

1. INTRODUCTION

Toponymy (from gr. Τόπος, place + ὄνομα, name) is the science that deals with the research of place names. "Oikonym" is a term proposed by Ion Conea for human settlement name, from the Greek oicos = home + onyma = name (Palamariu, 2002). A GIS is an informational system that allows the capture (the introduction), storage, integration, manipulation, processing and visualization of data that have spatial reference (Imbroane, 2012, p. 33).

The link between toponymy, as a science and research object, and GIS, as a tool and research method, is quite fragile in Romanian geography. Therefore, the purpose of this article is to identify the relationship between space and oikonyms with specific morphological structure using GIS analysis tools.

A great example of spatialization for toponymic information is given by I. Boamfă (2011), who analyzed the distribution of pastoral activities in Romania by anthroponyms (highlanders, shepherds, etc.), highlighting the uniqueness of the Romanian space, from this point of view, in the whole Eastern Europe.

Another interesting analysis on Oltenia, on oikonyms with origin in woodland vegetation and deforestation was made by C. Iordache (2009). The spatialization of those oikonyms showed the decrease of the degree of naturalness over time, through deforestations, especially in the Subcarpathian and Getic areas.

¹ Bucharest University, Faculty of Geography, Bucharest, Romania

F. Jacobs (2011) exemplified for the UK and Ireland the importance of toponymic structure spatialization for the knowledge of the characteristics of a given territory: "If you're in the north of England and you're in a town ending in -by, you're in former Danish-ruled territory. If the toponym starts with beau- or bel-, it was probably named by Normans. And if it contains the prefix Avon- or the suffix -combe, it is one of many place names of Celtic origin" (Jacobs, 2011).

In the same article, the author made the so-called "Alphabetical Maps", in which he represented the density of oikonyms with the same uppercase (A, B, C and so on). Thus, by analogy, we want to see if for the county of Prahova there are any rules for the distribution of oikonyms with certain suffixes. I. Nicolae (2007) made several references to suffixes, exemplifying those that show the Slavic origin of toponyms, such as "-ov" (Bucov, Cricov), "-na" (Câmpina, Crivina), "-iște" (Grădiște), "-ava" (Dumbrava), "-ița" (Gherghița) etc.

R. Crețan (2007) analyzed etymologically the oikonyms from Eastern Timișoara, identifying their origin in Romanian, Hungarian and Slavic and their evolution under the influence of the authorities. In this regard, suffixes have been an important clue ("-falău" of Hungarian origin, "-ova" of Slavic origin and so on).

The aim of this analysis is not to classify oikonyms according to their etymological background, but to their morphology (endings of plural, feminine, masculine, augmentative or diminutive). The article proposes to spatialize the preference for certain oikonyms to show, for example, where diminutival oikonyms appear (those with the suffix "-oara", "-ița", "-el"), where those indicating the transmutation of populations appear (those with the suffix "-eni") etc.

2. METHODOLOGY

To achieve the proposed purpose, to spatialize, to interpret and characterize the oikonymical coating according to certain features (like suffixes and the composition with the word "Valea (Valley)", a database of 458 settlements in the form of point (fig. 1) was obtained from OpenStreetMap. These are the main towns and villages.

The oikonyms were classified according to the final morphological structure (suffixes) in several categories.

The classes thus obtained were integrated into a GIS analysis environment. First, we studied the distribution of oikonyms with certain suffixes. By interpolation of Kernel Density Estimation in SAGA GIS, maps of oikonyms frequency were obtained according to their number and density.

In the second part of the research a GIS analysis on oikonyms composed by "Valea (Valley)" (as determinant or determiner) was proposed. They are widespread in Romania, as shown by S. Goicu-Cealmof (2006), bringing many examples in this respect: Valea Largă (Wide Valley), Valea Neagră (Black Valley), Valea Rea (Bad Valley), Valea Crucii (Valley of the Cross), Gura Văii, Cotu Văii, etc.

In this case, the purpose of the analysis was to see the connection between them and the grade of settlements location in the valley. In fig. 2 the concept of grade of placement in valleys is represented. This is more pronounced as the localities are located in deeper valleys (first column), or narrower valleys (second column), or as occupying a lower position on the valley floor (third column).

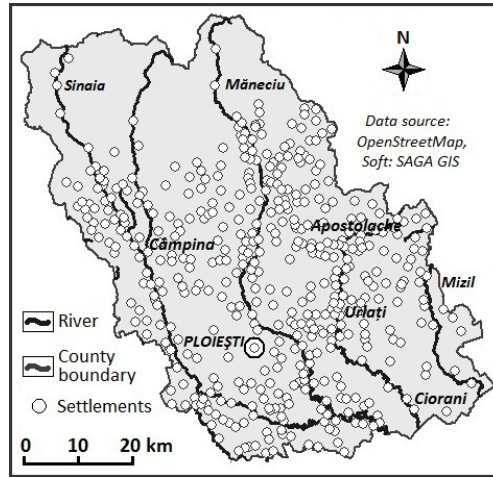


Fig. 1. Prahova County. The analysed system of settlements

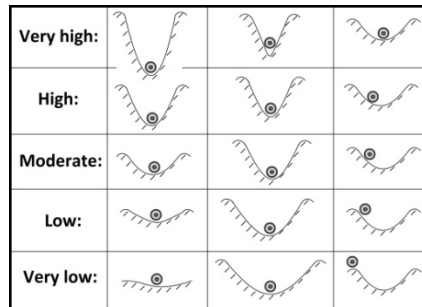


Fig. 2. Schematic representation of the grade of settlements location in the valleys.

The grade was calculated using SRTM, depending on:

- Convergence Index, outlining valleys.
- TPI (topographical position index), which decreases the value of the cell from the average value of neighboring cells. So it settles each cell in the valley, on the slopes or interfluv.
- The difference between cell altitude and minimum regional altitude.
- The difference between the maximum altitude and minimum altitude to emphasize the degree of deepening of valleys.

The rasters were reclassified and mediated obtaining the outlining grade of the valleys (fig. 12). Thereof, the values of grade of settlements location in the valleys were extracted for all localities (point type). Points values (of settlements) were interpolated by kriging method to get a raster of this indicator (fig. 13). So, except for the northern end of the county, where there are not localities, the darker the gray tones, the more pronounced the placement of the settlements in the valleys.

3. RESULTS AND DISCUSSIONS

Following the evaluation of oikonyms, the classification of oikonyms was obtained from OpenStreetMap database (table 1). This is useful for the analysis of the link between the geographical area and the toponym meaning (according to suffixes) of the settlements in the analyzed area.

Oikonyms classification according to suffixes and oikonyms composed with word "Valea (Valley)"

Table 1

Suffixx	Some characteristics	Examples
-anca	Feminine, articulate, augmentative	Chijdeanca, Brătășanca, Palanca
-asca	Feminine, articulate	Loloiasca, Nevesteasca, Goceasca
-oara	Feminine, articulate, diminutive	Nucșoara, Vițioara, Sălcioara
-ina	Feminine, articulate	Ocina, Crivina, Cătina, Cămpina
-ița	Feminine, articulate, diminutive	Gherghița, Lopatnița, Ciupelnița
-a	Feminine, articulate	Cheia, Buda, Priseaca
-ele	Plural articulate or not articulate, often diminutive	Fântânele, Coșerele, Măgurele,
-ile	Plural articulate	Odăile, Vârfurile, Poienile
-el	Masculine or neuter, singular, diminutive	Găvănel, Lăpoșel, Sărățel
-et, -etu, -eți	Derived diminutive words	Brădet, Făget, Zmeuret, Păcureți
-u	Masculine or neuter, singular	Dâmbu, Slavu, Plaiu
-oi, -oiu		Blejoi, Pițigoi, Cheșnoiu,
-ori, -oru	Diminutive	Târgșoru, Ploieștiori
-ani, -anu	Derived from original words, especially plural	Tătărani, Tufani, Cireșani
-ari, -aru	Derived from original words, especially plural	Cărbunari, Buștenari, Rotari
-eri, -eru	Derived from original words	Vistieru, Sângeru, Rachieri
-eni	Derived from original words, plural	Ungureni, Ologeni, Trestieni
-ești	Derived from original words, plural	Predești, Românești, Lipănești
-i	Masculine, plural, often no article	Adunați, Bătrâni, Boboci
altele	No plural, no article	Colceag, Lapoș, Starchiojd
„Valea”	Oikonyms composed with word "Valea (Valley)"	Valea Călugărească, Valea Seacă

Note: The "articulated" refers to the definite article. Data source: OpenStreetMap

It should be noted that there may be some errors of classification, due to the generalized process of classification, as the 458 toponyms were not considered individually, etymologically speaking. Also we considered the present names of the settlements. It is known that they have changed over time, changes including their suffixes. As D. Butnaru (2009) exemplifies, toponyms generally pass through a dynamics that change their original popular form, by the intervention of administration representatives, foresters, agronomists, geographers. Great changes occurred especially during the communist period, when the authorities were irritated by names reminiscent of royal historical past, certain political and cultural personalities, names that had religious connotations, or those considered demeaning (Nicolae, 2000).

Thus, according to the Decree 799 of the 17th of December 1964, the settlement Ciumați (Men with Plague) became Olarii Vechi (Old Potters), Râncezi became Nucșoara de Jos, Scăioși became Făgetul, the village Vrăjitoarea (Witch) became Pietrișul (Gravel), Gheboasa (Humpy) became Valea Mare (Great Valley), Degerați (Frozen men) became Vâlcelele (Little Valleys), Vai de El (Wretched) became Podgoria (Vineyard), Mărăcini (Thistles) became Crângurile (Little forests), the village Mitropolia (Metropolitanate) became Smârdanul Mic, the village Protosinghelu (a monachal orthodox rank) has become Iazul (Pond).

Thus, because of the changes suffered by settlement names, the spatialization results are relative only to the present.

The obtained maps of the oikonym frequency in accordance with suffixes, can be corroborated with historical and geographical information likely to identify the causes that led to oikonym concentration in certain areas. We have spatialized the oikonym categories that have more representatives. The oikonyms with feminine singular termination, articulated with definite article are presented in fig. 3 and 4.

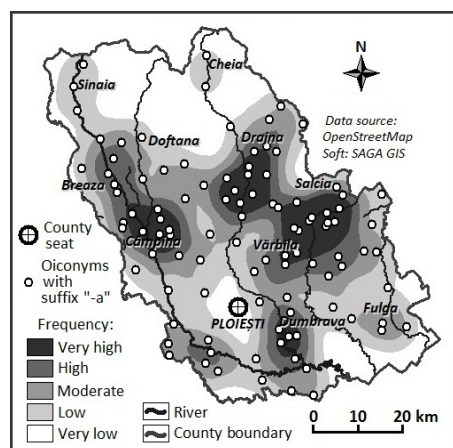


Fig. 3. Prahova County. Oikonyms with suffix "-a".

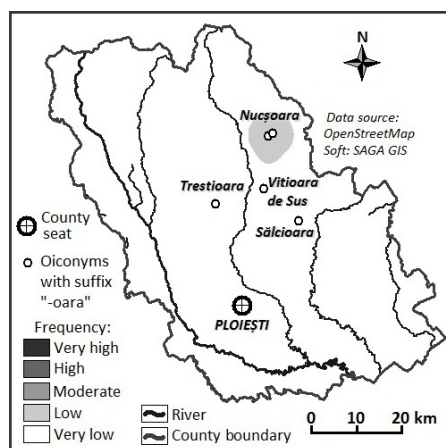


Fig. 4. Prahova County. Oikonyms with suffix "-oara".

Oikonyms formed with the suffix "-a" (fig. 3), as the definite article, are scattered throughout the county, with higher concentrations in Prahova Valley (Azuga, Sinaia, Breaza etc.); in Vălenii de Munte area - middle valley of the Teleajenul River (Draștia, Cheia, Bughea etc.); Podeni Depression – Sângeru area, Cricovul Sărat (Salcia, Plavia, Mehedința, Prișeaca, Vărbila, etc.).

Diminutive oikonyms (with the suffix "-oara": Sălcioara, Vișioara, Nucșoara, Trestioara) are concentrated in the central-eastern part of the county (Mislea-Podeni area, Draștia), in the Subcarpathian area (fig. 4). Meanwhile, the oikonyms with the suffix "-ița" (Gherghița, Ciupelnița, Bălțița, Matița, etc.) occur in the southern half, especially in Gherghița Plain.

The suffix "-et" contributes to the formation of oikonyms, especially from plants (Avram, 2012). In fig. 5 one can see an interesting fact about the distribution of oikonyms with the suffix "-et", "-etu", "-eți" (Brădet, Făget, Frăsinet, etc.), which are situated east of Teleajen Valley. Moreover, one may notice an area of high concentration of singular articulated and masculine oikonyms (Pietrișu, Plaiu, Cornu) north of the confluence of Doftana and Prahova rivers (fig. 6), immediately upstream from the area of concentration of the oikonyms finished with "-a" (fig. 3).

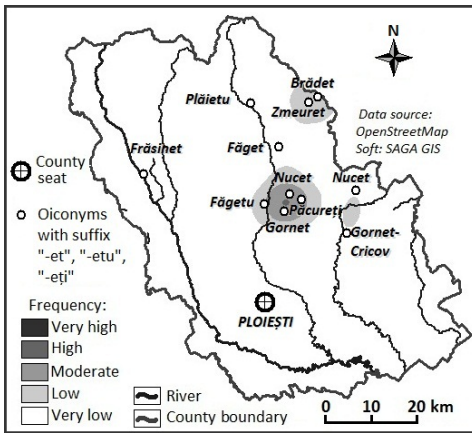


Fig. 5. Prahova County. Oikonyms with suffix "-et", "-etu", "-eți".

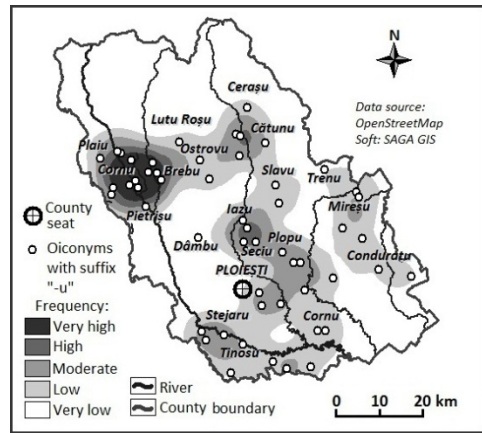


Fig. 6. Prahova County. Oikonyms with suffix "-u".

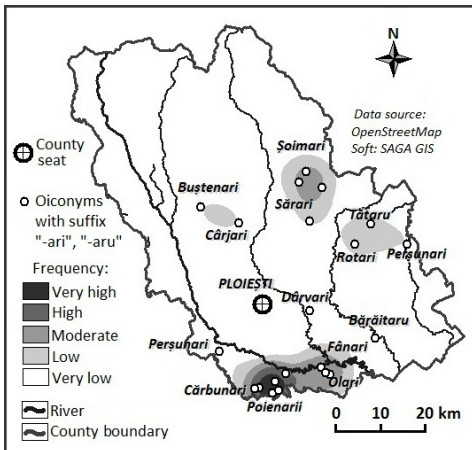


Fig. 7. Prahova County. Oikonyms with suffix "-ari", "-aru".

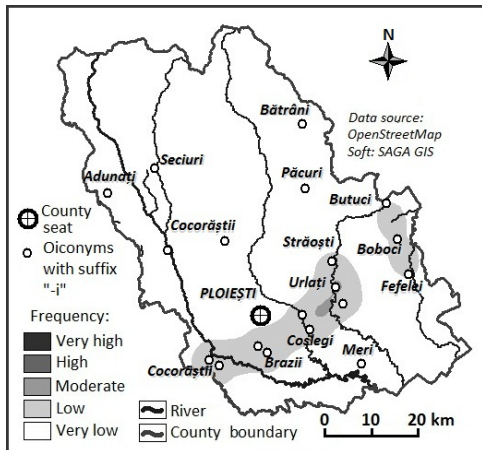


Fig. 8. Prahova County. Oikonyms with suffix "-i".

Further, the suffix "-ar" is intended to form the agent name, as action author or job (Avram, 2012). In fig. 7 one may remark the prevalence of these oikonyms south of Prahova River: Fânari, Olari, Cărbunari, Poienarii. Those ending in "-i" (Urlați, Brazi, Meri, Cocorăștii) occur mostly in the high plain (fig. 8). As regards the oikonyms ending in "-ani" or "-anu", there is a fairly homogeneous dispersion within the county (fig. 9).

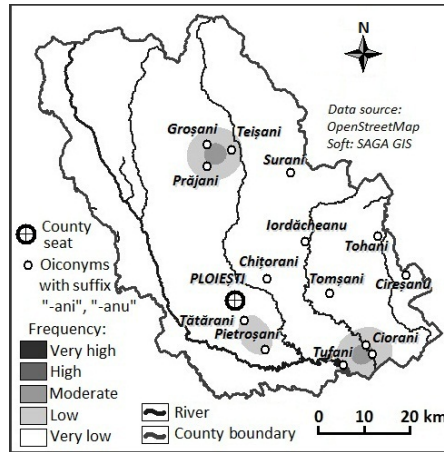


Fig. 9. Prahova County. Oikonyms with suffix "-ani", "-anu".

It is interesting to note the high concentration of oikonyms ending in "-eni" (Văleni, Chiciureni, Măneciu - Pământeni, Măneciu - Ungureni, Făcăieni, Olteni, Fundeni, Ploeni, Scăeni, etc.), along Teleajen River. The suffix "-eni" expresses the movements of people from one region to another (Avram, 2012). In fact, Teleajen Valley (not Prahova Valley) was the main transit thoroughfare between Transylvania and Wallachia. Besides, the oikonyms with the suffix "-eni" are almost absent on Prahova Valley (fig. 10).

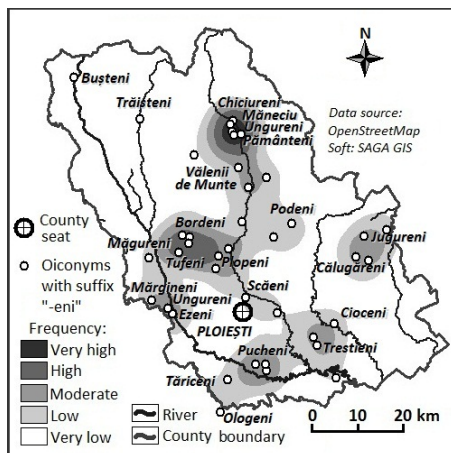


Fig. 10. Prahova County. Oikonyms with suffix "-eni".

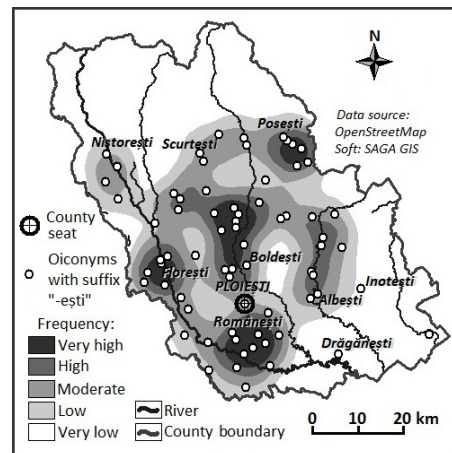


Fig. 11. Prahova County. Oikonyms with suffix "-ești".

The oikonyms with the suffix “-ești” are usually derived from the name of personalities or indicate the derivation from the names of the settlements of origin. Excepting the south-east extremity of the county and the northern area (poor in settlements), these oikonyms are spread throughout the territory (fig. 11). A higher concentration may be seen also on Teleajen Valley (Lipănești, Boldești, etc.) and south of Ploiești (Țigănești, Românești, Bărcănești, etc.).

Following the second analysis, with respect to the correlation between oikonyms composed with word “Valea” (Valley) and the character of settlements located in the valley, we obtained results that show the oikonyms veracity.

These oikonyms were interpolated by Kernel density method (fig. 14), resulting in a very interesting fact: their concentration in two areas. The first one is around Urlați - Valea Călugărească area (Valea Seman, Valea Urloi, Valea Mieilor, Valea Cucului, Valea Mantei, Valea Orlei, Valea Nicovanei etc.). The second one is around the north-eastern Subcarpathian area (Valea Plopului, Valea Screzii, Valea Anei, Valea Tocii, Valea Stupinii etc.). A third area is in the western extremity of the county (Valea Oprii, Valea Bradului, Valea Târsei).

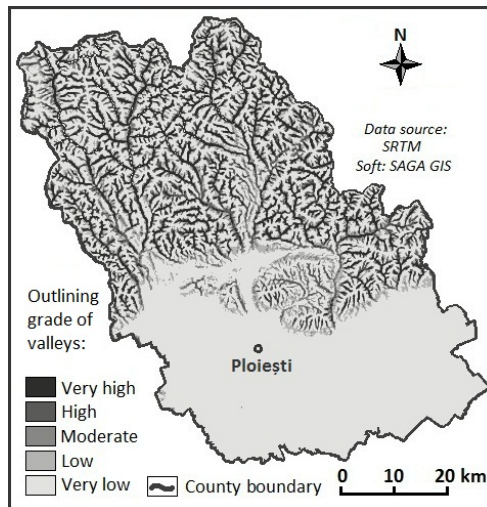


Fig. 12. The outlining grade of valleys

Corroborating fig. 13 and fig. 14, one notices the existence of a strong relationship between the grade of settlements location in the valleys (fig.13) and the distribution of oikonyms of "Valley ..." type (fig. 14). The sector in the western extremity (Valea Oprii, Valea Bradului, Valea Târsei) overlaps the dark grayscale in fig.13, as well as the north-eastern sector.

Instead, the oikonyms from Urlați – Valea Călugărească sector apparently are not in the area with settlements that have a strong valley-related character, compared to other higher areas of the county. But, compared to other areas from the low Subcarpathian Hills string, by far the darkest grayscale from fig.13 appear in Urlați and Ceptura hills.

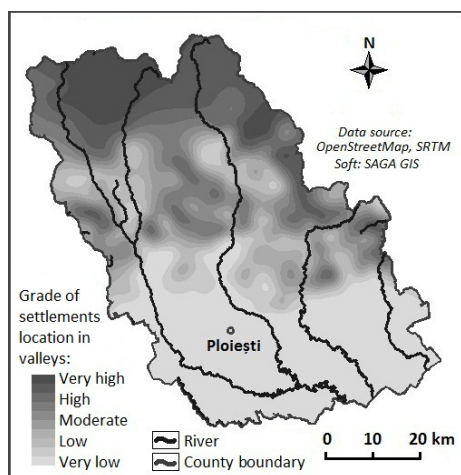


Fig. 13. The grade of settlements location in the valleys

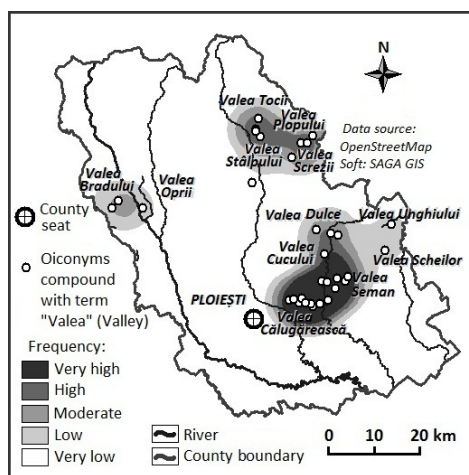


Fig. 14. The oikonyms including the word "Valea" (Valley)

In addition, one could mention the areas between Prahova and Teleajen rivers (fig. 13) with very dark grayscale (so with a pronounced valley-related character of settlements), but there are no oikonyms including the word "Valea" (Valley).

4. CONCLUSIONS

In this paper we gave an example of a way of using the benefits of Geographical Information Systems in the field of toponymy, namely the study of the distribution of oikonyms in Prahova County.

The link between the oikonyms and space has been noted, primarily from a historical-geographical point of view. In this regard, one remarked, for example, the high frequency of oikonyms derived with the suffix "-eni" (which suggests that the population moved from one region to another) along the Teleajen Corridor which functioned as a transit thoroughfare between Wallachia and Transylvania.

Secondly, the relationship between oikonyms and space has been outlined from the physical-geographical point of view, as the relation between the oikonyms of "Valea ..." (Valley...) type and the location of settlements in the valleys.

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