

## **THE FUNCTIONALITY OF THE BORDERLAND TERRITORIAL SYSTEM ACCORDING WITH THE RELIEF AND THE ROMANIAN-UKRAINIAN BORDER-LINE SUPPORT**

**Alexandru ILIEȘ\***  
**Vasile GRAMA\*\***

**Abstract:** The content of this article is referring to the Northern part of the Romanian-Ukrainian border, measuring 440.1 kilometers, and it is included in a dominant mountain area of the Carpathians Mountains. The scientific approach has as main objective the modeling of contiguous border and that of the cross-border systems generated by their combination in accordance with the morphological background. Using instruments and methods attested by the political geography literature we proposed to identify, from the quantitative, qualitative and functional-systemic point of view, those agents who also determine the elements that compose the functioning mechanisms of the Romanian and Ukrainian contiguous border areas starting from the support of the line border and of the morphological characteristics of the contiguous natural bordering systems. Such a cross-border system plays an important role for the social and economical integration process and for eliminating the traditional functions of the political border generating juxtaposed territorial systems.

**Key words:** Border, Romanian-Ukrainian Borderland, Carpathians Mountains, Cross-border cooperation

### **INTRODUCTION**

The determination of a state's border is usually the result of a complex process, generated by a term-political condition in order to institutionalize the inherent connection between a community and a territory by setting up concretely their limits of competences. In many cases, these limits are the result of some conflicts or, in other cases these were drawn in a standard whose geographical coordinates were accepted by both sides involved. The two contiguous territorial border systems had differentially evolved from the point of view of the development and involvement level in territorial structures of cross-border cooperation. If the impediments in the cooperation's way have succeeded in different ways depending on the regional and European political situation, from the landscape's point of view, as a support of the anthropogenic activity, the opportunities are numerous and diversified.

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\* *Correspondence Address:* University of Oradea, Department of Geography, Tourism and Territorial Planning, 1 University str., 410087 Oradea, Romania, e-mail: ilies@uoradea.ro

\*\* University of Oradea, Department of Geography, Tourism and Territorial Planning, 1 University str., 410087 Oradea, Romania, e-mail: vasigrama@yahoo.com

### OBJECTIVES

Starting from the idea that “a territorial system is essential in defining a certain category of territorial development, which envisages the contingency of some social-economical and cultural purposes” (Cunha, 1988, 181-198; Ianoş, 2000, 21), through our approach we propose as a main objective to identify the conditioning degree of the natural constituent over the anthropogenic one as a cross-border territorial system. Under these conditions, the study analyses the elements, the instruments and the specific mechanisms of the natural background, which may bring contribution in the development of some integrated systems and in the creation of a contiguous functional area superposed to the Romanian-Ukrainian cross-border territorial system. The results might be applied models to similar areas. The analysis focuses on the implications that a border limit might have in determining the functionalities of some border systems, on one side, and of some generated cross-border systems, on the other side. The models are the result of the natural systems overlapping over the man-caused territorial ones, having as a result the prominence of the cross-border functionality degree.

### THE GEOGRAPHICAL BACKGROUND

The Northern area of the Romanian-Ukrainian border may be considered as a relict one, inheriting the morphological characteristics of the Romanian-Soviet border and having 440,10 kilometers in length, where the area extension coincides with the width of contiguous border systems determined by (figure 1):



Fig. 1. Romanian/Ukrainian Borderland according with administrative divisions in Romania and Ukraina (2010)

- the equivalent administrative-territorial units of the two countries as actors (NUTS 3-5: counties/municipalities, cities and communes in Romania and regions/districts in Ukraine). From the administrative point of view, the Romanian-Ukrainian cross-border territorial system determined by this criteria (59,061 km<sup>2</sup>) enlarges over an area of 4 counties in Romania (Satu-Mare, Maramureș, Suceava and Botoșani), measuring 24,261 km<sup>2</sup> (which means 41.1 % of its surface) and over 3 regions in Ukraine (Zakarpattia, Ivano-Frankivsk and Cernivtsi), measuring 34,800 km<sup>2</sup> (58.9 % of its surface). The result is a dyssymmetric system with a larger Ukrainian part, position generated also by the incongruence of the two countries' administrative-territorial units;

- the extension of the hydrographic basins as main erosion agents under the geomorphologic aspect (Tisa, Siret and Prut);

- two contiguous border stripes, with a width of 30 km (figure 5), considered as relevant for the identification of some elements and mechanisms specific to a border area (13,203 km<sup>2</sup> each of them). The contiguous territorial border systems settled by the strip of 30 km width generate a cross-border system with a surface of 26,406 km<sup>2</sup>, this value being lower than the other one settled by the border systems which were determined by the width of the contiguous and equivalents administrative-territorial units (NUTS 3), measuring 59,061 km<sup>2</sup>.

## **METHODOLOGY**

Concerning the methodological aspect, in order to identify the functionality degree of such a cross-border territorial system, "a first step would be that of figuring out its internal structure by identifying the main components and their role in defining its position" (Ianoș, 2000, 21). In structuring a territorial system, the landscape and the anthropogenic background interpenetrate, overlap and interact in defining some systems of relationships underlying its functionality. So, if within a "natural macro-system the relationships are of interaction ones" (Ianoș, 2000, 23), by this study we will try to identify under what conditions these relationships are about to influence the functionality of the anthropogenic subsystem (social-economical) whether a border state barrier interferes. It starts from the fact that depending on the political system of each country, on the relationships between the contiguous countries, on the regional, continental and global political conjuncture, the border's role and functions are continuously changing their shares defining the opening degree towards cooperation between the two contiguous border systems.

The informations examined within this study proceed from the direct observations of the authors within the Romanian and Ukrainian study area over several years, and also from official sources of statistical data such as the national, regional and local statistical institutes of the two countries and the border police in Romania. The use of some models already applied in other areas and the identifying of the specific elements and mechanisms underlying their functioning represent the key of this approach centered on the external border of E.U., "redrawn" within an area that inherits some characteristics of the ex-socialist system and that is placed at the occidental limit of the ex-soviet region. Using principles, methods and instruments verified and attested by the political geography literature (Prescot, 1987; Foucher, 1991; Martinez, 1994; Timothy, 1999, 2000, 2001; Bufon & Minghi, 2000; Bufon, 2004, 2008; Hall D., 2000; Ianoș, 2000; Cocean, 2005; Ilieș & all, 2006, 2007, 2009; Sulli-Zakar, 2009), our

approach represents the framing of a scientific departure which is about to underlie answers to the triplet questions where? why? and how? The diagnostic review, as a research method and as an organizing and leading instrument available to the decisional actors in territorial planning, allows the identification and the prominence of the encouraging and/or limitative agents in developing an integrated system within the determined area.

The free movement of people and the easiness of advancing the border state barriers are underlying the development of some cross-border relationships systems of a high functionality degree. Within this context, the reviewed area might be identified with one or more of the four cross-border relationships categories between contiguous countries proposed by Martinez (1994, 3-4): alienated (without relationships); coexistent (minimal opening); interdependent (willingness between adjacent countries to establish cross-border network and partnership) and integrated (abolished economic and political barrier, free flow of goods and people).

Others important indicators in analyzing the cross-border areas are: the density of the cross border points (Ilieş & all, 2009), the support of the border state trajectory (Ilieş, Grama, 2006), the 3, 4 and 5 NUTS density within these areas (Bufon, 2004), the average distance in regard to the capital and to the decisional centers of an inferior level, the ethnical and confessional component (Kocsis K., 2007) and so on. The administrative-territorial organizing manner and the human resource regarding the quantitative and qualitative aspect, associated to an efficient communication way and transport system, are basic pillars in shaping some systems whose functionality is directly derived from an efficiently applied geographical management (Ilieş & all, 2009, 168). The typology of the cross-border systems, related to the external border of E.U., plays also an important role in defining the functionality of the determined cross-border areas.

Another aspect of reference methodological background is the border area width measuring from 25 to 30 km or even 40-50 km. For this study we will take into account border areas of 30 km width (fig.5).

## **DISCUSSIONS**

The natural background, the support of all the elements and mechanisms that determine the intensity, the direction and the volume of the activities within a functional area, stores up a high potential, overlapping dominantly (more than 80 %) over the Northern mountain area of the Carpathians Mountains (figure 1 and 5), having an altitude of more than 1,800 m and decreasing by-stages towards West and East to 200 m altitude in the plain. Within the mountain area, the presence of the intra-mountainous depressions and of the valley chutes offer a variety of landscapes; this conditions in the same time the in-flowing and the outgoing of the energy and substance. In parallel, the political background, as a support for developing a spatial regime (Forster H, 2000, 11), has totally changed and diversified its conditions for the last 20 years regarding the European continent level. Within this geographical area, the political-economical dynamic and the structural-spatial order are extremely relevant within the area occupied/decontrolled by the matrix generated by the “distension” of the EU area and the “constriction” of the non-EU one.

By changing continuously the role and the shares of the border state functions, with results in amplifying the process of differentiation/blurring of development advance, the border areas are looking for some practical models



and strategies which are able to transform them into cross-border territorial systems with a higher level of functionality (Ilieș Al, 2003, 2004).

The natural background is a major agent in determining the functionalities of the contiguous border systems through morphology, exposure and morphometric particularities. Concerning the natural background the relationships between the components have many distinct forms, “but these are always of mutual determination” (Ianoș, 2000, 22), which fortify the idea that the geographical influence is extremely obvious for the functionality of a territorial system. If for a territorial system “its inner structural and functional organization determines the maintenance of the same order under different external aggressions showing a great resistance to the change” (Ianoș, 2000, 25), the appearance of a barrier as the state border or any other administrative limit may introduce major changes in its functioning mechanisms, particularly for homogeneous natural units.

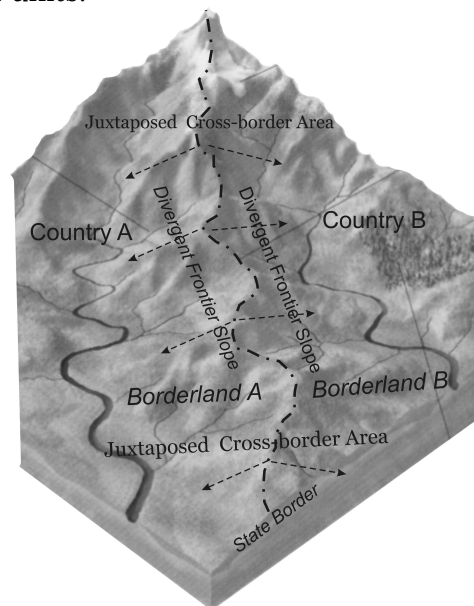


Fig. 2. The modeling of natural systems built on border divergent regions – juxtaposed  
(Drawing processed after J.F. Luhr, 2006, pp. 212)

In the case of mountainous units, partially included in the state administrative territory, the generated border areas have a cross-border interconnection potential depending on the position of the state border trajectory related to the mountainous range exposure. It results three major categories:

a.) *juxtaposed* - it is characterized by a low degree of interconnection influenced by the morphology, the structure and the relief altitude; the support of the state border coincides with the limit of highest altitudes or with hydrographical limits. In these cases, the expenses for building and the maintenance of the infrastructure are extremely high. Regarding the countries with a reduced level of development or with a complex geopolitical position (on the external border of EU and NATO), the appliance of a cross-border project in infrastructure is extremely difficult to realize, the Romanian-Ukrainian case being relevant in this sense (figure 5). In figure no. 5 the modeling points out natural systems built on border divergent regions, the same characteristic being

evident also for the energy and substance flow towards the “interior” of the border system.

b.) *morpho-functional* – with a high interconnection potential, determined by the natural background morphology. The state border trajectory transversely divides mountainous units, valleys and depression areas and the barriers in the communication way are generally of political and legal nature. The expenses for development of infrastructure are easily lower than that of the first category, having the advantage of a long historical recognized trajectory. The Romanian-Ukrainian model from the Western part of the Oriental Carpathians, overlapped to the Maramures Depression is illustrative (figure 5). In this case, the contiguous border systems, even if they don't benefit of a favorable legislative support, they naturally cooperate on the basis of a common history (figure 3a and 3b).

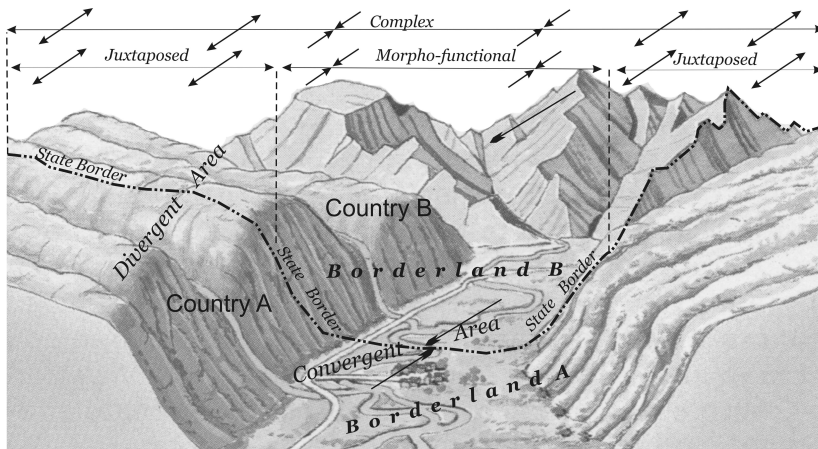


Fig. 3a. The modeling of morpho-functional cross-border area with a high interconnection potential according with transversal border support line (Drawing processed after Accordi B. & all, 1993, pp. 436)

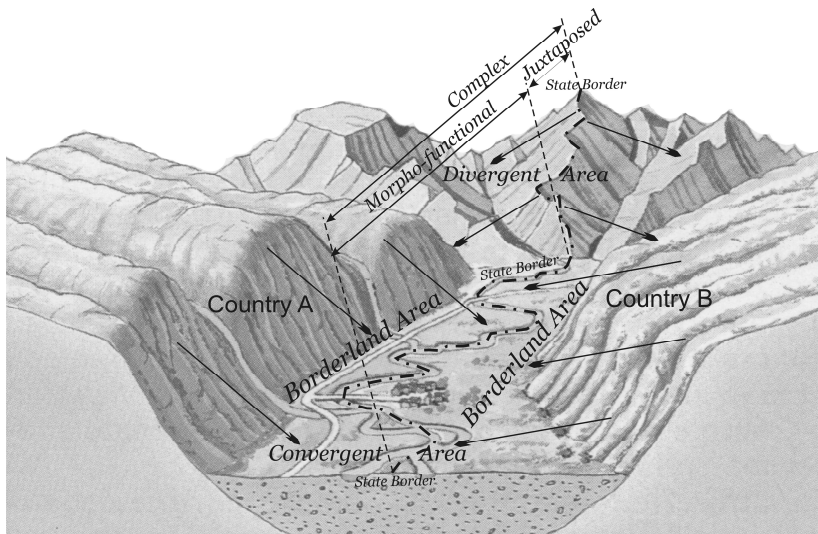


Fig. 3b. The modeling of morpho-functional cross-border area with a high interconnection potential according with longitudinal border support line (Drawing processed after Accordi B. & all, 1993, pp. 436)

In figure 3a the cross-border morpho-functional system identifies itself with a depression area transversely divided and where due to the morphological characteristics the substance and energy in-flows and outgoings are directed towards a homogeneous territorial system. In this case, regarding the two contiguous border systems there appears the subordination relationship generated by the transversal division of the hydrographical basin. So, the state **A**, which is downstream located, has a “*subordination*” relationship regarding the hydrographical basin administration in comparison with the state **B** upstream located. At least theoretically, the “*downstream*” border system receives more substance and energy from the contiguous “*upstream*” border area. Each border system partially benefits of both border regions.

In figure 3b, the longitudinal division of a homogeneous natural system by a border whose support is represented by a hydrographical artery implies a distinct management of the “*border regions*” for each border system; the hydrographical artery represents “*the line for convergence of the substance and energy flows*”. Therefore, the natural territorial system benefits of an equilibrated infusion of substance and energy from both border systems. In accordance to the role and the border functions, the two border systems may act both systemically and juxtaposed without intra-systemic relationships. The case of Maramures Depression, longitudinally divided by the present Romanian-Ukrainian border overlapped on Tisa Valley is relevant in this sense (figure 1 and 5).

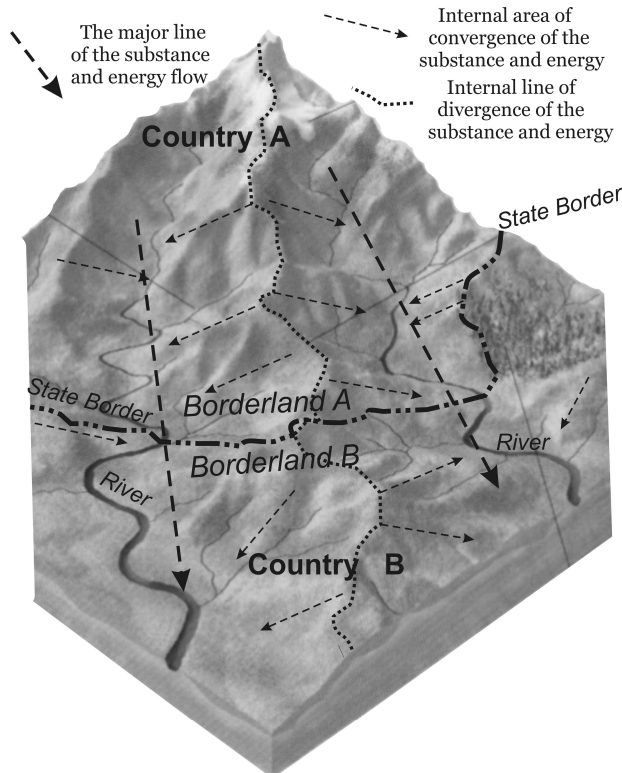


Fig. 4. The modeling of complex cross-border area according with transversal border support line  
(Drawing processed after J.F. Luhr, 2006, pp. 212)

c.) *complex* – resulted from the combination of the two previous categories and which may have multiple successive segments (figures 3a, 3b and 4). Depending on the share of the two models may result interstate cross-border systems, from the point the view of the interconnection potential: *high potential systems* – when the morpho-functional systems are dominant; *low potential systems* – when juxtaposed systems are dominant and *equilibrated potential systems* – when the two categories are slightly equal. Depending on the position inside the interstate cross-border system, these systems may be: *in equilibrium* – with uniform arrangement along the morpho-functional system’s border and *unequal* – with chaotic arrangement of the favorable elements for communication and whose result inside the landscape represents the conditioning arrangement of the communications ways, human settlements and economic activities.

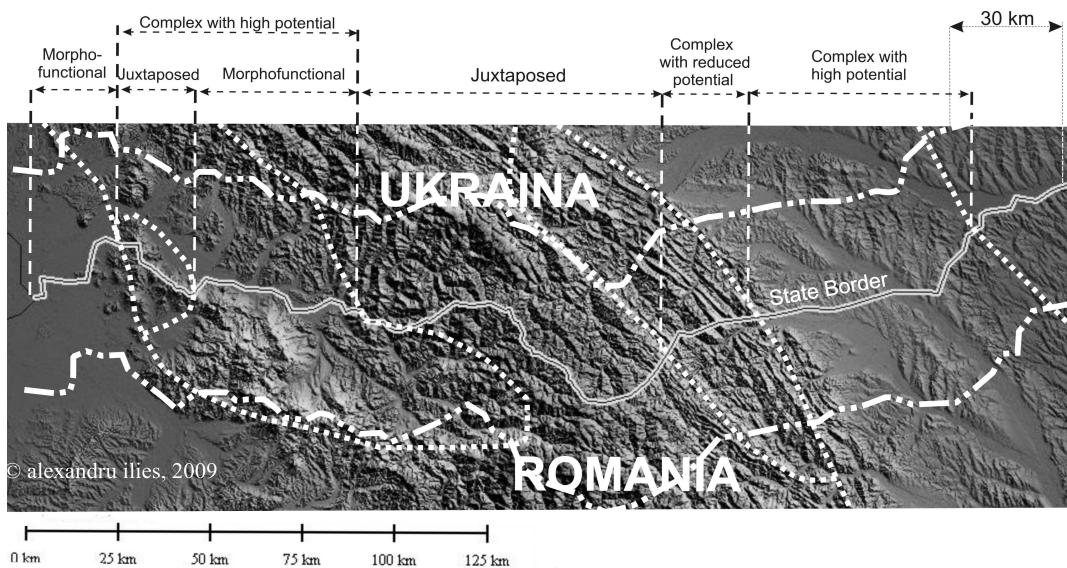


Fig. 5. Functional territorial systems of Romanian-Ukrainian borderland according with relief peculiarities and border line support

In figures 3a, 3b and 4, the cross-border system complexity results from the border position related to the natural divided systems and where one can identify:

- two or more natural (morpho-functional) systems transversely divided, who can generate subordinate border systems (figure 3a and 4);
- two or more natural systems belonging to the same border system but without substance and energy interchanges due to the divergent lines that separates them (figure 3b).

In all the three cases, the border permeability under human mobility and goods trading aspect on one hand and the territorial extension, the altitude and the relief morphology on the other hand, there are elements with great influence over the development/constriction of the cross-border relationships.

From this point of view the Romanian-Ukrainian cross-border system (figure 5) belongs to the complex category where the cross-border relationships development dominantly results from the international (EU and NATO) role of the border that divides it.

The morphological profile of the border support trajectory that generates the Romanian-Ukrainian cross-border system (figure 6) benefits of the advantages of a common mountainous area of the Oriental Carpathians, which is transversely divided, having an altitude of more than 1,800 m in the central part and decreasing by-stages towards West and East to 200 m altitude in the plain (figure 6) in the extremities. In the same time, the profile divides three large hydrographical basins (Tisa, Siret and Prut). At their turn, the rivers, due to the geographical position, generate “subordination” relationship of the inferior basin area in comparison with the superior one. By studying this profile one can locate the trajectory-support of the connection elements of the two border areas. The morphology of the determinate cross-border system and its cross-border interconnection degree may be brought to light through the review in parallel with the morphologic profile of the state border support of the internal profile which delimitate the width of the contiguous border areas up to 30 km (figure 5).

**CONCLUSIONS**

Analyzing these elements represents the basis for cross-border territorial planning strategies draft. Each component element of a territorial system may be analyzed, interpreted and applied to the existent territorial structures under the condition that an appliance of the general criteria of space division (Coccean, 2005) and the identification of the mechanism that assure the functionality of these territorial systems (Ianoș, 2000) may group the identified structures into territorial units with high degree of functionality that can generate economic development. So, the models of cross-border territorial systems determined by the morphological characteristics of the relief with the examples of Romanian-Ukrainian cross-border territorial system, associated to the role and the border functions might be important elements in defining the cross-border cooperation strategies especially on the Eastern border of EU.

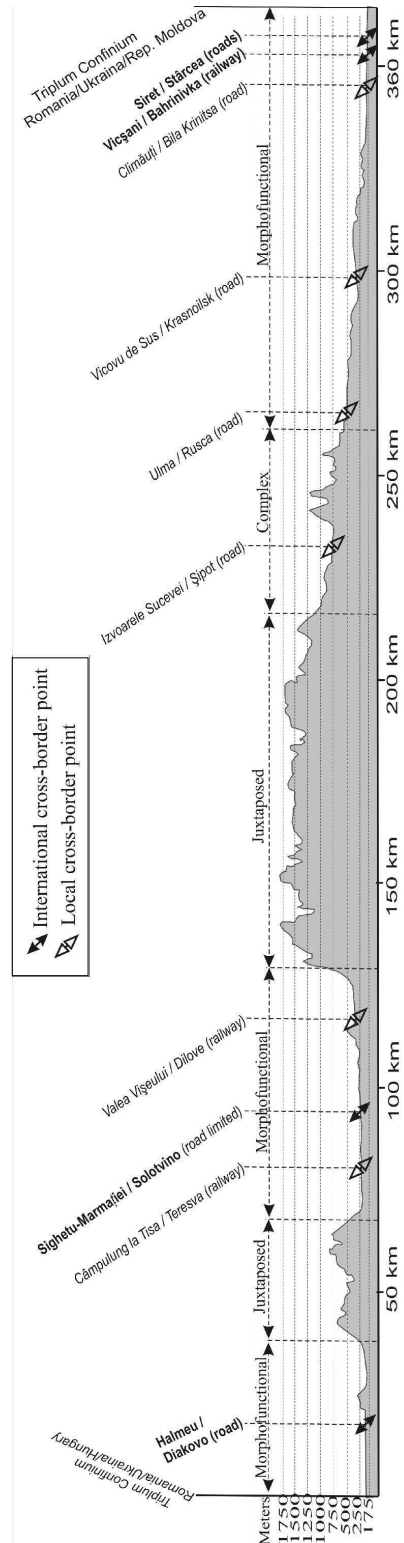


Fig. 6 . Morphological Profile of the Romanian/Ukrainian border and its characteristics

Therefore, we propose that when it comes to the territorial planning as cross-border territorial systems as a part of integrated planning a special attention has to be paid to the morphological characteristics of the relief. In this context, the question is which is the optimum width of a border sub-system, which is the distance from the border to the center to which its effects can be socially and economically noticed on one side, and to what distance far from the border the implication of the decisional actors might have direct effects in modeling the cross-border territorial systems?

Another great advantage, generated by the border position of the national outskirts of the two states, specific to the mountainous area, is the position of the two contiguous border areas included in untouched natural areas (Timothy, 2001, 2), favorable premise for the development of some natural parks in a cross-border system (Ilieş Dorina, 2008). Many of the border areas of the former Iron Curtain, which are essentially areas of untouched vegetation and wildlife, have now been designated as nature preserves (Timothy, 2001). The Carpathians Mountains belong to relatively small trans-boundary areas in Europe. In spite of its biogeographically unity, the mountain range is managed by two national parks: The National Park of Maramures and Rodna Mountains, on Romanian side and The Biosphere Reservation in the Woody Carpathians, on Ukrainian side.

We can appreciate that the determined border systems play an important role regarding the aspect of the social and economical integration and of the traditional functions elimination of the political border that generates juxtaposed territorial structures.

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