

The Rural Landscape and Small-Scale Agricultural Practices in the Transylvanian Plain

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ABSTRACT

This paper is focused on the relationships between small-scale agricultural practices and cultural landscape of Transylvanian Plain. The geographical position of Transylvanian Plain in central part of Romania shows with relevance its favourability for sustainable agriculture and developing assumptions. Despite of this, the region was kept outside of the major infrastructural and economic trends. We could, also, include the Transylvanian Plain into a typical rural "central isolation space" relating on this historical-political tendencies, concluding on different types of rural and agricultural landscapes. In this context, small-scale agriculture practices are alternatives to factory farming or more broadly, intensive agriculture or unsustainable farming methods. Sustainable agriculture is not only a package of prescribed methods but is a pre-requisite for territorial development of rural areas. Small scale agriculture include a number of sustainable farm practices such as: organic farming, which removes all chemical pesticides, herbicides and fertilizer from agriculture; permaculture, which provides a holistic methodology for farm design; arable land use that is used for growing crops; non-arable land use; pastoral land use etc. Generally speaking, the small-scale agricultural practices are oriented to: produce enough food; produce safe food; take care of the environment; build thriving and strong rural communities.

1. INTRODUCTION

This work is focused on the relationships between small-scale agricultural practices and cultural landscape of Transylvanian Plain. The geographical position of Transylvanian Plain in central part of Romania shows with relevance its favorability for sustainable agriculture and developing assumptions.

Despite of this, the region was kept outside of the major infrastructural and economic trends. We could, also, include the Transylvanian Plain into a typical rural "central isolation space" relating on this historical-political tendencies, concluding on different types of rural and agricultural landscapes (fig. 1, fig. 2).

The cuesta morphology, the frequency of slope

processes (i.e. landslides), and high extension of the river flats ("pseudo-river flats") are the most characteristic morphological features of the natural landscape (fig. 2).

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Fig. 1. Transylvanian Plain - Landscape with hills.



Fig. 2. Agro-Terraces in the Transylvanian Plain.

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2. MATERIAL AND METHOD

Census database (1966, 1992, and 2002), CORINE LU/LC (1992) (Fig. 3), physiologic density index (Demangeon, 1968, quoted by Surd, 1979, 1993), overlays methods, mapping methods and GIS techniques were used.

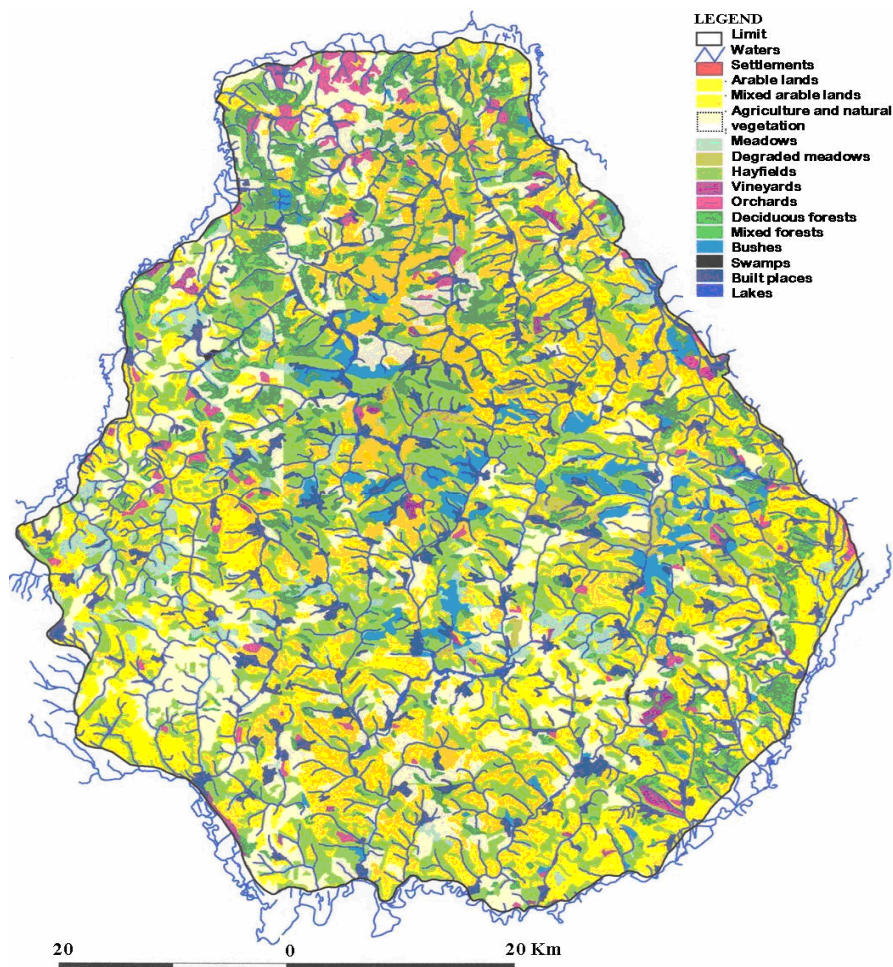


Fig. 3. Corine LU/LC for Transylvanian Plain [1], [3].

Thus, some indicators are used: *physiologic density index* (number of inhabitants per agricultural surface) reflects the intensity of human pressure reported to main rural activities; *settlements' density index* has importance in studying of the infrastructural pressure, the weight of cultural landscape in the regional framework.

Both indicators were calculated during the last three censuses (1966, 1992, and 2002) and they are

mentioned on thematic maps (fig. 4, 5 and 6).

Ecological imbalance is supplemented XIII-XVII centuries since the emergence of villages in water catchment areas, with organization of agricultural land in the amphitheater style (fig. 7).

Subsequently, slope processes were activated after turning the soil. Moreover, cuesta type slopes and different soil types have decisive influenced Transylvanian Plain's land use (fig. 8).

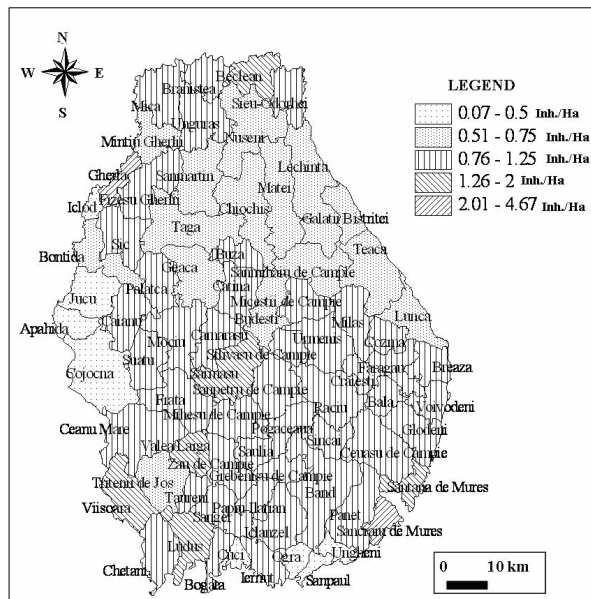


Fig. 4. Physiologic density (1966) [1].

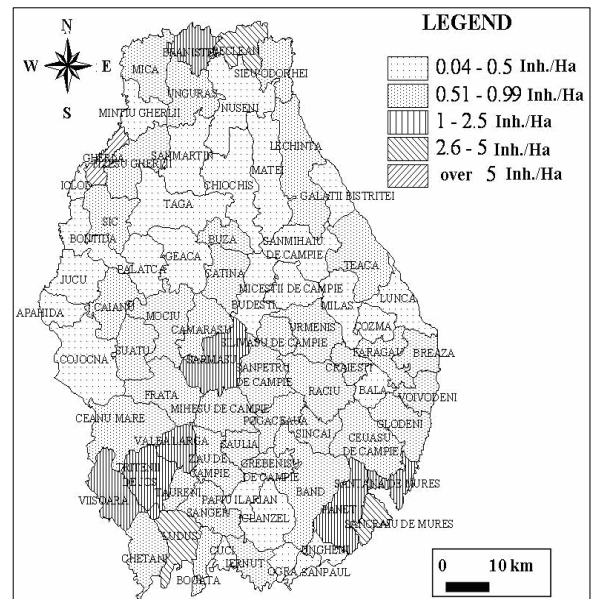


Fig. 5. Physiologic density (1992) [1].

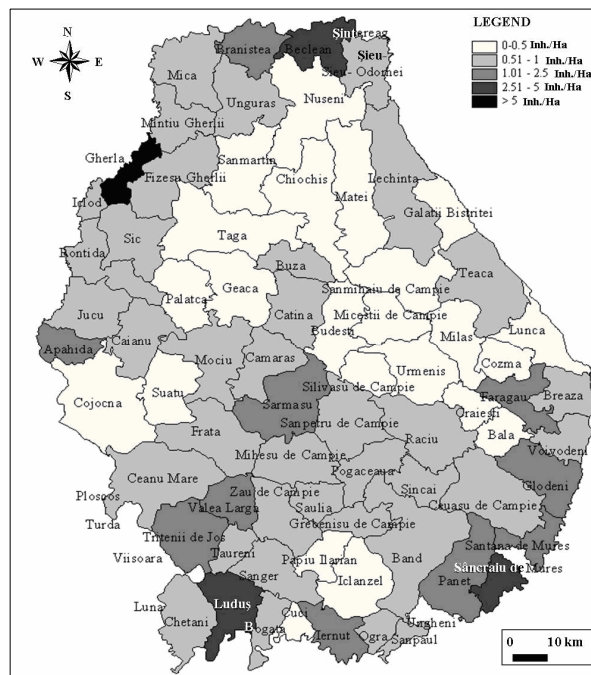


Fig. 6. Physiologic density (2002) [1].

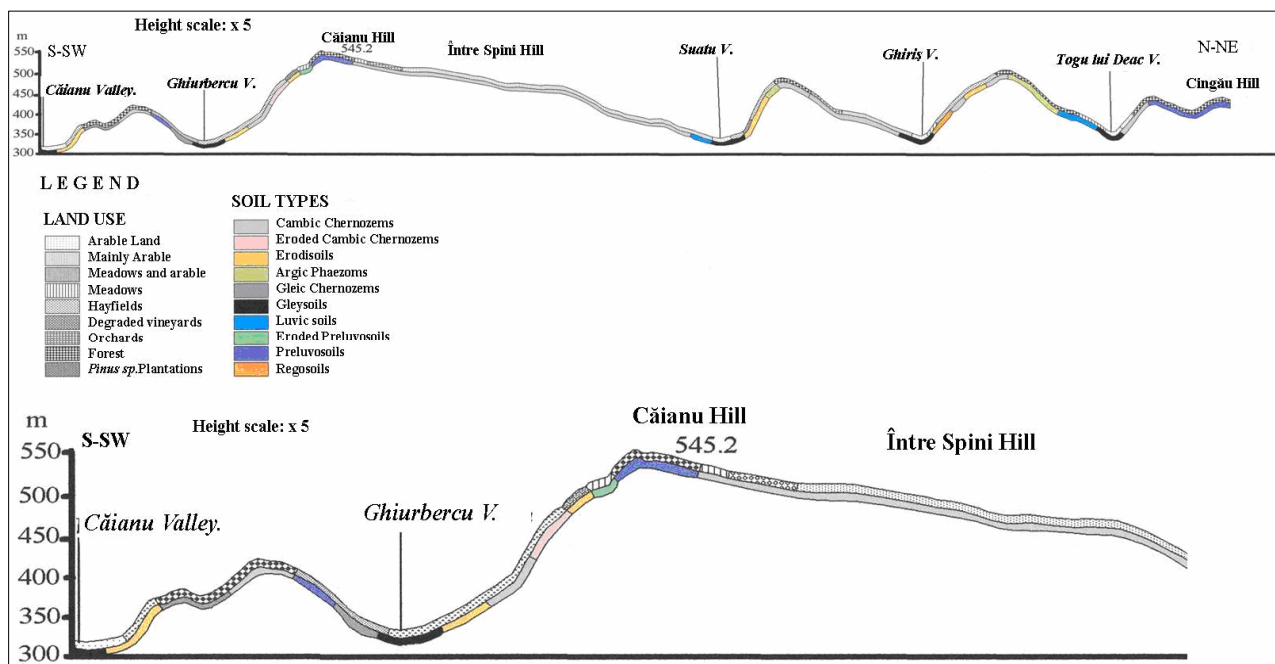


Fig. 7. Typical correlated profile between morphology, soil types and land use (Căianu Valley – Cingău Hill Sector) [1, 3].

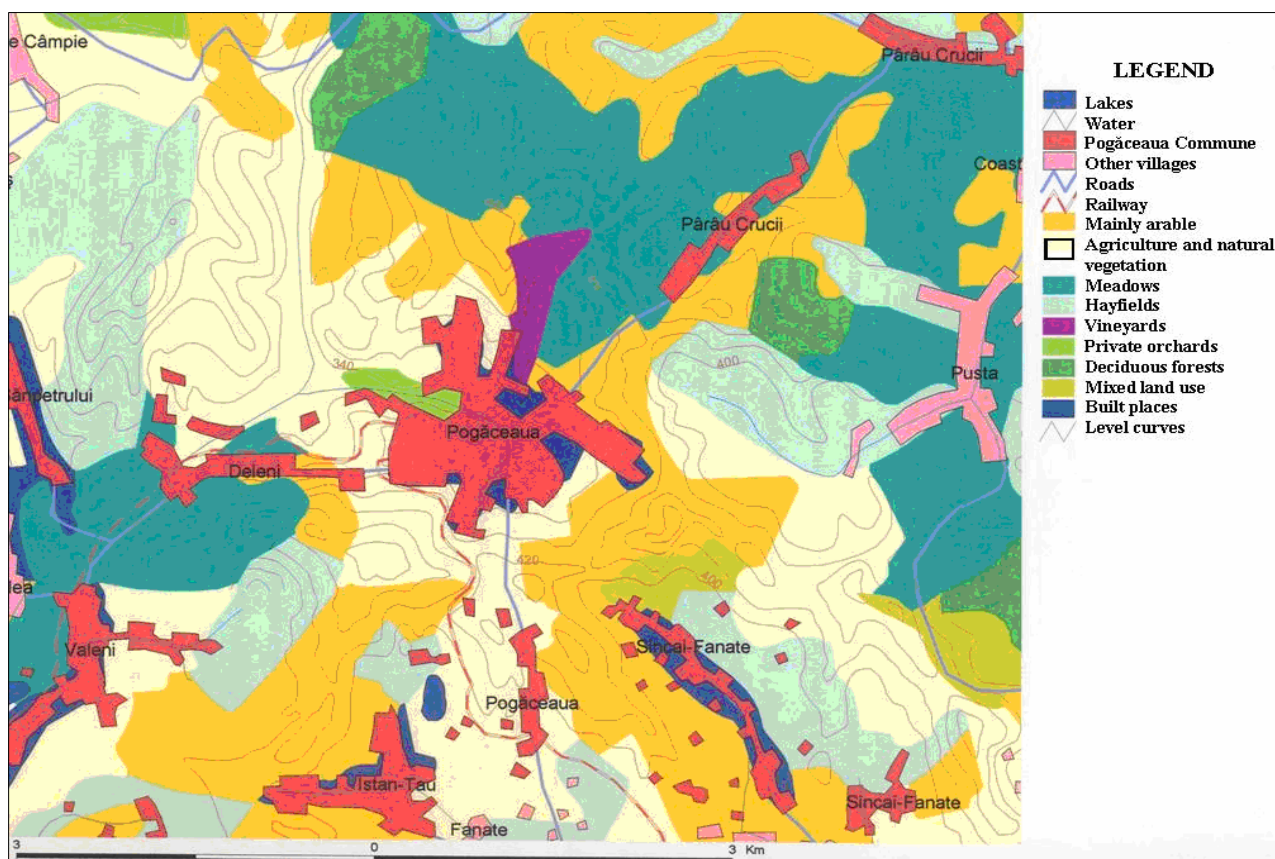


Fig. 8. „Amphitheater” style Land Use in a catchment basin [1].

3. RESULTS AND DISCUSSION

The settlements' density index is a very interesting one, because gives additional information related on human pressure. Although the territorial

configuration of the villages creates an image of a regional uniformity, their density is a heterogeneous one. We can notice discrepancies between the villages' areas and the number of small villages (hamlets) in the Mureș Plain.

The low level of settlements' density reveals an assumption of defining of the rural spaces and landscapes, critical and aging. The defining of the rural landscapes in the Transylvanian Plain is a conclusive part of this study, because for an agricultural region is the most relevant indicator of the state of development.

This shows the historical, political and demographic dynamic results inside a typical central isolated area. The energetic flux was permanently centrifugal and distributes the agricultural products and the human interests outside the region.

The physiologic density index decreases during three census period, as a direct consequence of population decline (the population of Transylvanian Plain drops by 20 percent in nearly 40 years: 352,348 inhabitants in 1966 – 282,821 inhabitants in 2002). As we showed above, it indicates a low level of agricultural space occupancy, with repercussions for the poor processing of agricultural land. Only 14 communes record over 1 inhabit. /ha, reflecting the low potential of Transylvanian Plain population for cultivation, maintenance and agricultural valorization (fig. 4, 5, 6).

These spatial entities overlap the central part of the region, creating a distinguished *central isolated area*.

Physiologic density values are lower in Someș Plain (the northern part), even though here the number of very small villages is not so relevant.

In the southern part (Mureș Plain) the values are higher because the dispersion generated by the existence of *hamlets* makes land use more efficient, even if the number of residents is lower, taking each village into account.

The effects of physiologic density decreasing tendency are: the return to traditional practices of exploitation, the return to *small scale agricultural practices*, degradation of access roads to the *agro-lands*, abandoned lands, the general state of rural pessimism [7].

4. CONCLUSION

It can be affirmed that the Transylvanian Plain has suffered a considerable human impact during the last two hundred years, in spite of the seemingly insignificant human pressure and of the prevalence of the villages with reduced population.

It is also true that not all of the interventions at the level of the environmental components were made through the direct or indirect activities of the local population.

The changing of the form of land use, the politic of the plantations on slopes were the main problems that changed the agricultural practice into the Transylvanian Plain. In addition, the practicing of the monoculture (as effect – soil erosion), the *"inertia"* in land exploitation (as effect – the lack of cultures rotation), the economic autarchy, the deficiency of the

awareness of belonging to the territory (as effect – the disaffection of the hamlets and the general demographic export), the overgrazing (as effect – the destruction of the natural vegetation and of the plantations), the aging process of the population (irremediable consequence) are exceeded problems.

EU integration through its general approach on land use (extending the surface of ecologic agriculture, renaturation of river streams corridors, and implementing the best agricultural practices on existing cultures), together with a foreseen decrease of financial pressures due to expected road network development can contribute to a sustainable preservation of rural traditional practices and natural landscape's features.

Unfortunately, in areas with inertia to depopulation, even in countries in which these plans are considered as state policy (the Eastern German Lands, The Baltic States, Slovenia, The Czech Republic), the implementation of any development strategies is almost impossible.

REFERENCES

- [1] **Baciu, N.** (2006), *Câmpia Transilvaniei. Studiu Geoecologic (The Transylvanian Plain – A Geoecological Study)*, Presa Universitară Clujeană, Cluj Napoca.
- [2] **Baciu, N., Muntean, L., Man, T.** (2000), *Presiunea antropică în Câmpia Transilvaniei (The human pressure in Transylvanian Plain)*, Conferința regională de geografie Timișoara 2000, pp. 191-194.
- [3] **Baciu, N., Schuster, E., Stănescu, Carmen** (2005), *Veränderungen der geografischen Landschaft in verschiedenen historischen Perioden in der Siebenbürger Heide (Changes of the geographical landscape in different historical periods in the Transylvanian Plain)*, Studii și Cercetări, seria Geologie-Geografie, 10/2005, Muzeul Județean Bistrița-Năsăud, Bistrița, pp. 123-130.
- [4] **Cocean, P., Surd, V.** (1979), *Abordarea studiului așezărilor umane prin perspectiva fluxurilor energetice (The approach of the human habitats' study through the perspective of the energetic fluxes)*, vol. Orașul și ambianța umană în perspectivă sistemică, II, 1978, Cluj-Napoca, pp. 357-360.
- [5] **Drăguț, L., Schreiber, W.E., Muntean, O. L., Man, T.** (2005), *Landscape consequences of demographic change in western part of the Transylvanian Plain (Romania)*, EcoSys – Beiträge zur Ökosystemforschung, Bd. 11, Kiel, pp. 162-168.
- [6] **Rey, Violette et al.** (2002), *Atlasul României (The Atlas of Romania)*, Enciclopedia RAO, București.
- [7] **Surd, V.** (1993), *Model de analiză cantitativă a Câmpiei Transilvaniei (A Model of Quantity Analysis upon Transylvanian Plain)*, Studia Geografia, XXXVIII, 1, Cluj-Napoca.