

PEDODIVERSITY OF SOIL COVER TĂTARULUI VALLEY RIVER BASINS, WITH VALLEY ROAD AND VALLEY APPLES SLANIC LOCATED ON THE RIGHT SIDE OF THE RESTED

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Abstract

The concept of genetic diversity and spatial expressed pedodiversity soil in a particular territory. For this purpose data are correlated in the studied soil genesis with their spatial arrangement in that territory. This concept was presented in the work of Professor Florea N. not "territorial units Pedodiversitatea genetic quality indices and geopedological analysis".

Key words: pedodiversity, hidrographic basin, variability, complexity

The soil in the hilly area of Buzau county is characterized by a diversity recognized, which is why there have been developed numerous research programs over time. This area was chosen for study three watersheds Tatarului Valley with Valley Road and Valley Apples, located on the right side of Slanic soils in this area were analyzed in terms of morphometric, calculated and interpreted pedodiversity following indicators: variability, soil weight, topogeographical index, size and shape of areas, average size and complexity index.

The results of a database joins absolutely necessary application of GIS technology as a tool for planning and analysis of the environmental consequences of human intervention.

MATERIAL AND METHOD

Valley catchment Tatarului with Valley Road and Valley Apples are located on the right side of Slanic - Buzău (Fig. 1). In these basins were conducted soil mapping at 1:5000 scale, in order to identify soil types and defining areas of spread. Number of main profiles open their morphological description and interpretation of laboratory tests were performed according to the "Methodology development soil studies – ICPA București, 1987". Demarcation and separation field maps of areas occupied by different soil types was made taking into account pedogenetic factors specific study area. Environmental conditions specific to each river basin and anthropogenic intervention, led to different evolutions of the soil.

The total area is 205.39 ha mapped. The soil is black earth area occupying more than half of the book (figure 2).



Figure 1 Hydrographic basin Slanic - Buzau

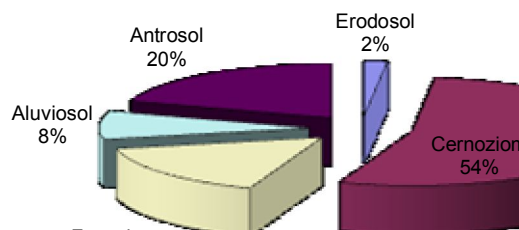


Figure 2 Share catchment soil types studied

Among other soil types identified anthrosol occupies 41 ha, phaeoziom 32.95 ha, aluviosoil 17.3 ha and erodosoil 3.6 ha.

Pedodiversity express spatial distribution of the soil in a particular territory, analyzing the size, shape,

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position and number of the areas occupied by them and influenced by pedogenetic factors (table 1).

Table 1

Pedogenetical factors specific hidrographyc basins studied

Nr. crt.	Hydrographic basin	Tipul de sol	Parental material	Relief	Slope category	Agricultural use
1	Tătarului Valley	Pelic - Erodosoil	marl clay	convex slope	25-35%	arable
		Argic Chernozem -	clay	slope, lower third	15-20%	arable
		Cambic Chernozem	clay	the middle slope	25-35%	pasture
2	Road Valley	Calcaric - Anthrosol	marl	platform terraces	15-20%	orchard
		Argic - Anthrosol	marl clay	platform first	15-20%	orchard
		Argic Chernozem	shale	slope left	15-20%	arable
		Calcaric Phaeoziom	salty marl	slope right	15-20%	grassland
2	Apples Valley	Calcaric Phaeoziom	clay marl	slope	10-15%	arable
		Coluvic Aluviosoil	clay marl	thalweg	5-10%	arable
		Cambic Chernozem	loess	slope left	15-20%	pasture
		Tipic Chernozem	loess	slope right	15-20%	grassland

1. Soils in each river basin were analyzed morphometric and were calculated and interpreted following indicators of spatial pedodiversity:

1. Soil variability is the number of ground units in a particular territory (number of units of work).

2. Percentage soil (PS) expresses the percentage of soil units $PS = Su/St \times 100$ where:

Su - area occupied by the unit of land (ha)

St - total area (ha)

3. Topogeographical index (IPT) is the ratio of the areas occupied by azonal and zonal soils. $ITP = S_{azonal} / S_{zonal}$ (km^2 / km^2)

Topogeographical index reference value is 1, in which zonal soils are dominant, and over the azonal.

4. The average of the area are carrying forward the sum of the areas of each complex (Si) soil and their number (h).

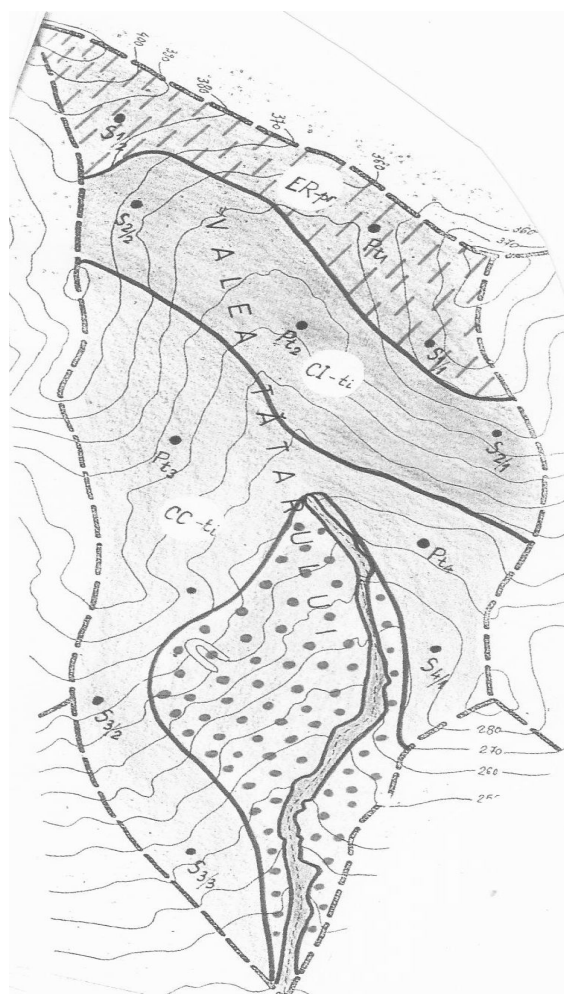
$$Sm = \sum Si / h$$

5. Complexity index (CI) expresses the diversity of soil cover

$Ic = n / St$ where n-number of areas of land, the total area St.

RESULTS AND DISCUSSION

In Hydrographic basin Tătarului Valey, was used to calculate the indicators pedodiversity cartogram mapping soils developed from the perimeter soil studied (figure 3). The surface of each soil type and the percentage of soil are shown in the table 2. Pedodiversity indicators calculated based on soil cartograms are shown in table 3.



CC-ti – cambic chernozem, CI-ti – argic chernozem, ER-pr – pelic erodosoil
Figure 3 Catchment soils cartogram Tătarului Valley

Table 2

Areas and percentage of soils

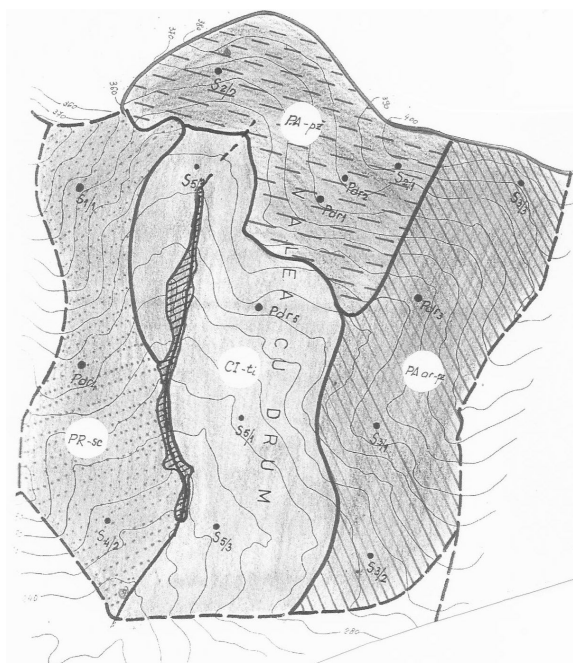
Nr.crt	Hydrographic basin	Tipul de sol	Areas (ha)	% PS	S (Km ²)
1	Tătarului Valley	Pelic Erodosoil	3.6	8.4	0.4
		Argic Chernozem	15.6	36.3	1.6
		Cambic Chernozem	23.8	55.3	2.3
		Total hidrographic basin	43	100	4.3

Table 3

Pedodiversity spatial indicators of hidrographic basin Tătarului Valley

Variability of soils	The average area of habitat (Km ²)	ITP	The soil zonal surface area (Km ²)	The soil azonal surface area (Km ²)	Ic
3	1.43	0.2	3.9	0.8	0.69

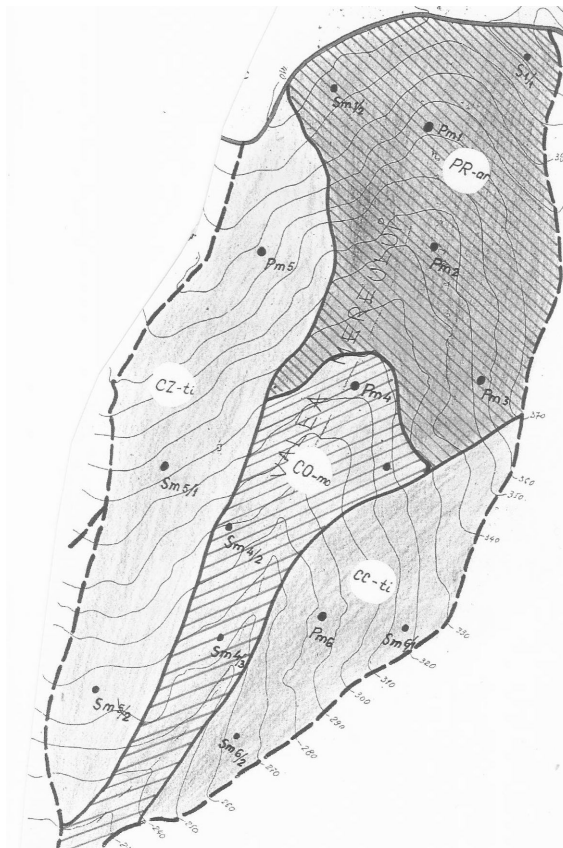
In hydrographic basin Valley Road, was used to calculate the indicators pedodiversity cartogram mapping soils developed from the perimeter soil studied (figure 4). The surface of each soil type and the percentage of soil are shown in the table 4. Pedodiversity indicators calculated based on soil cartograms are shown in table 5.



CI-ti – argic chernozem, Pr-ti - calcaric salinic phaeoziom, Pr-pz – calcaric anthrosol, Pr-ar- argic anthrosol

Figure 4 Valley Road catchment soils cartogram

Hidrographic basin Mereului Valley was used to calculate the pedodiversity indicators cartogram mapping soils developed from the perimeter soil studied (figure 5).



CC-ti – cambic chernozem, CZ-ti – tipic chernozem, AS-co – coluvic aluviosoil, FZ-ar – argic faeoziom

Figure 5 Catchment soils cartogram Mereului Valley

The surface of each soil type and the percentage of soil are shown in the table 6. Pedodiversity indicators calculated based on soil cartograms are shown in table 7.

Table 4

Area and percentage of soil					
Nr. Cr.	Hydrographic basin	The type of soil	Area (ha)	% PS	S (Km ²)
2	Road Valley	Calcaric Anthrosol	17	21.6	1.7
		Argic Anthrosoil	24	30.5C	2.4
		Argic Chernozem	27	43.3	2.7
		Calcaric Phaeoziom	10.75	13.6	1.1
		Total hidrographic basin	78.75	100	7.9

Table 5

Pedodiversity spatial indicators of hidrographic basin Tătarului Road

Variability of soils	The average area of habitat Km ²	ITP	The soil zonal surface area Km ²	The soil azonal surface area Km ²	Ic
4	1.97	0.9	2.7	2.4	0.51

Table 6

Area and percentage soils

Nr.crt	Hydrographic basin	The type of soil	Area (ha)	% PS	S (Km ²)
3	Mereului Valley	Calcaric Phaeoziom	22.2	26.5	2.2
		Coluvic Aluviosoil	17.3	20.7	1.7
		Cambic Chernozem	18	21.5	1.8
		Typic Chernozem	26.14	31.3	2.6
		Total hidrographic basin	83.64	100	8.3

Table 7

Pedodiversity indicators into hydrographic basin Mereului Valley

Variability of soil	The average area of habitat Km ²	ITP	The soil zonal surface area Km ²	The soil azonal surface area Km ²	Ic
4	2.07	0.9	4.4	3.9	0.48

To compare the data obtained were calculated average values of the corresponding indicators mapped the entire surface. Topogeographical index for the whole area - IPT = 0.63 zonal soils are dominant.

The soil surface area = 11 km². Azonal = 9.5 km² land area. The average of the area - Sm = 1.9 Km². Complexity index CI = 0.51

Variability of soils in the three river basins (figure 6) shows that the catchment Valley with Valley Road and Apples are four units of work, and only three Tătarului Valley basin.

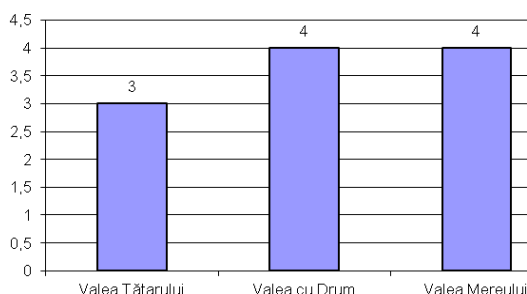


Figure 6 Variability of soils into hydrographic basins studied

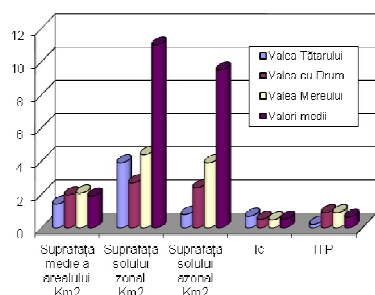


Figure 7 Pedodiversity indicators of river basins studied

The lowest average surface areas of 1.42 km² soil has Tătarului Valley (figure 7) with 0.64 km² less than the average area of the river basin Valley Apples and 0.47 km² less than the average of all surfaces book.

Zonal soils is chernozem with an average area of 11 km². In Tătarului Valley catchment area it occupies 3.9 km² soil in the Road Valley basin 2.7 km² and 4.4 km² catchment Valley

Apples largest area.

Azonal soils occupied an average area of 9.5 km². In Tătarului Valley catchment area soil is pelic erodosoil 0.8 Km². Argic Anthrosoil limestone and calcareous phaeoziomul azonal salic soils are in the catchment Road Valley occupied an area of 2.4 km². Argic phaeoziom and limestone soils are coluvic aluviosoil Valley Apples catchment area covering an area of 3.9 km². Topogeographical index (IPT) has the same value in valley basins and Valley Road Apples 0.27 km² over the entire surface media cards.

Complexity index (CI) expressed a variety of coating medium from the ground, it subunit values, which are the dominant means that soil area.

CONCLUSIONS

The soil in the catchment area studied is chernozem with a share of 54% and an average area of 11 Km²;

Azonal soils are phaeoziom, aluviosoil, erodosoil, anthrosoil and occupied an area of 9.5 km² average; The average area of land areas of 1.42 km² catchment is in the Tatarului Valley, 1.97 km² Road Valley and 2.07 km² in Mereului Valley;

Index topogeographical (IPT) has the same value in the basins Valley Road and Valley Apples 0.27 km² over the entire surface media cards; Complex index (CI) expressed a variety of coating medium from the ground, it subunit values, which are the dominant means that soil area.

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