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## LANDSCAPE–GEOCHEMICAL CHARACTERISTICS OF THE EASTERN PART BUKOVINA PRECARPATHIANS

The territory of research is located in the eastern part of Bukovinian Precarpathians. The Prut tributaries which wash out loose sandy–clay residues have formed a compound erosion relief. Range–hilly and sloping–wavy types of a relief are common here. The slopes of ridges and valleys are complicated with landslides which add slight hilly character to the surface.

The climate is drier and warmer, it corresponds to the moderate continental. Average January temperatures –  $-5$  –  $-5,5^{\circ}\text{C}$ , July –  $19$ – $20^{\circ}\text{C}$ . The total sum of the temperatures more than  $+10^{\circ}\text{C}$  in a year comprises  $2600$ – $28000^{\circ}\text{C}$ . The average precipitation amount is  $563$  mm [1].

Soil covering of the territory is represented by grey and dark–grey forrest–turf–podzol soils, meadow–swampy soils. Which were formed on the loamy soil, contemporary diluvium and bedded with guarded clays. In the natural vegetation motley–grass and cereals meadows dominate. Deciduous forests (oak ordinary, beech forest, hornbeam ordinary) are widespread, beech plantings prevail with occasional coniferous representatives (Gutsuleak, V., Hrytsku, V, Tanasiuk, M., 2013).

Morphological structure of landscapes is characterized by the conjunction of valley–terrace, slope and water–bearing complexes. Valley–terrace complexes are represented by flood plains, low and medium terraces of river Prut with meadow and ashed black earth under the complete belt of village settlements, motorways and agriculture lands.

Landscape complexes of high Prut terraces are intensively broken down with ashed black earth and dark–grey forrest soils, and are mainly under agriculture lands. Slope and water–bearing landscape complexes of high above–Prut plains, hilly and erosion–landslide areas are covered with grey and light–grey forrest soils under meadows of secondary formation, arable plots, beech–oak–hornbeam woods. These landscape complexes are formed by kidney–like erosion–landslide meadow hollow units with motley–grass and cereals meadows, arable plots, village buildings. There being widely spread landscape complexes of slumping sloping valley of the Prut tributaries (Gutsuleak, V., Hrytsku V, Tanasiuk M., 2013, Tanasiuk, M.V., 2015).

Geochemically the territory belongs to the family of geochemical landscape which is transitive from forest to steppe and meadow ones, transitive from acid to calcium class. It is characterized by the medium water exchange, transeluvial, eluvial–accumulative, neoeluvial elementary landscapes, availability of forest–like loamy soils and clays.

Properties of ground waters are the following: according to alkali–acid condition – neutral or low–alkali; according to the hardness category– moderate–hard, and hard (the average hardness is  $10,3$  mg–eqv/dm<sup>3</sup>); by the degree of mineralization– fresh (average mineralization–  $0,67$  g/dm<sup>3</sup>) by the limited norms of mineralization– good; by the chemical

composition–hydrocarbonate–calcium, more rarely–hydrocarbonate–magnesium–calcium (Gutsuleak, 2012).

In soils of this area the Pb content varies from 1,4 to 2,9 mg/kg, Zn from 8,1 to 12,8, Cu – from 3,3 to 3,9, the value of Cd ranged from 0,02 to 0,05 mg/kg.

For coefficients of lateral migration, heavy metals are accumulated in the upper horizon of soils, the index of saturation of soil with chemical elements from the range of 0,94 to 1,12, which indicates background values of trace elements and a slight accumulation in transeluvial and super–aquatic elementary geochemical landscapes.

Migration indices and the coefficients of radial differentiation showed that in ground sections of the elementary geochemical landscapes, the accumulation of heavy metals in the upper horizon and their migration along the profile. The greatest accumulation in the upper horizons falls on Zn and Cu, slightly weaker accumulate Pb and Cd.

In vegetation the concentrations of heavy metals vary in the following ranges (mg/kg): Pb 0,12–0,27, Zn 21,5–45,7, Cu of 6,5 and 12,7, Cd 0,01–0,02. The maximal content of Zn and Cu characteristic super–aquatic, and Pb and Cd for eluvial elementary geochemical landscapes.

Thus, the study area in the landscape is characterized mainly against valley–slope and watershed natural systems. It belongs to the family of geochemical landscapes transitional between forest and meadow–steppe and steppe, sour–calcium class, with transeluvial, eluvial and eluvial–accumulative elementary landscapes.

#### References

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