

EMPHASIZING THE MAIN SOIL CLASSES AND TYPES LOCATED IN BRADULUI DEPRESSION, ROMANIA

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Abstract

An unanimously acknowledged aspect is that, in the world, the quality of soils is not satisfactory, and the registered trends even show a worsening of this state of art. For this reason, it is considered that a first step in order to improve this aspect is performing the inventory of the main classes and types of soil, at regional level. Thus, the present study was undertaken in order to highlight the existing classes and types of soil in the Bradului Depression located in Hunedoara County, Romania. The results of the study indicate that the constituent soils of the Bradului Depression are the representatives of five classes, nine types and thirteen subtypes, with a spatial distribution highlighted by the soil map, drawn up at a scale of 1: 25,000, and the largest areas are occupied by: Eutricambisol (class Cambrisols), Alosol (Luvisols class), and Regosol (Protisols class), and the smallest areas are occupied by soil types: Rendzina (Cernisols class), Preluvosol (Luvisols class) and Erodosol (Antrisols class).

Key words: Antrisol, Cambrisol, Cernisol, Luvisol, Protisol

INTRODUCTION

Globally, the quality of soils is not among the best, and the evolution trend is considered to be oriented even towards a worsening of the situation (McInnes-Clarke et al., 2019). Problems related to soil quality are created by a number of factors, but agricultural practices registered both at the level of large farms and at the level of those who own medium and small areas of agricultural land (Cui et al., 2018), are considered as being of major importance in this context (Lai, 2008). Also in the category of important causes of severe soil degradation are: erosion, compaction and salinization (Keesstra et al., 2016). All of these have a high potential to destroy the productive capacity of the soil, which can worsen global food security situations (Fan et al., 2008; Godfray et al., 2010; Tester and Langridge, 2010). The present study was conducted in order to highlight the existing classes and types of soil in the Brad Depression located in Hunedoara County, Romania.

MATERIAL AND METHOD

The study was conducted in the area located in the Fir Depression. It is represented by an area equal to 98,000 ha located on the territory of Hunedoara county. The geographical area studied includes 11 localities, representing both rural and urban areas, respectively communes: Baia de Criș, Blăjeni, Buceș, Bucharest, Bulzești, Crișcior, Luncoiu, Ribița, Tomești and Vața, to which is added the city of Brad.

In order to identify the classes and types of soil in the experimental site, the Romanian Soil Taxonomy System - 2012 (SRTS - 2012) is used. The soil map was prepared in accordance with the established methodology.

RESULTS AND DISCUSSION

The constituent soils of the Bradului Depression are the representatives of five classes, nine types and thirteen subtypes, with a spatial distribution highlighted by the soil map, drawn up at a scale of 1: 25,000 (Fig. 1).

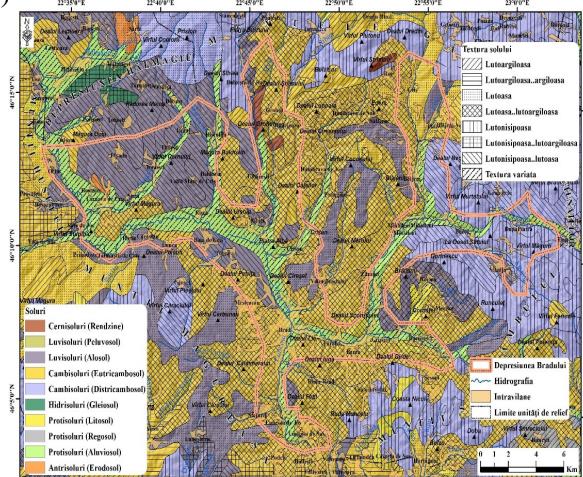


Fig. 1. The map of soil type in Bradului Depression

The soil classes, types and subtypes have a different distribution on the territory of the 10 localities located in the study area (Fig. 2).

It is noted that Bulzeștii de Sus is the locality that includes all soil types identified in the Bard Depression, but in proportions that differ greatly from one soil type to another, but Alosol and Eutricambiosol are predominant. The localities that include the fewest soil classes are those on whose territory three classes and four soil types have been identified. The localities that include three types of soil are Luncoiu de Jos (predominant being Alosol and Eutricambiosol), Bucharest (predominantly Regosol) and

Baia de Criș (predominantly being Eutricambosol), and those that include four types of soil are represented by the city of Brad, where predominant is Eutricambosol and the localities Ribița (where alluvial and Eutricambosol predominate) and Criscior, where Alosol predominates (Fig. 2).

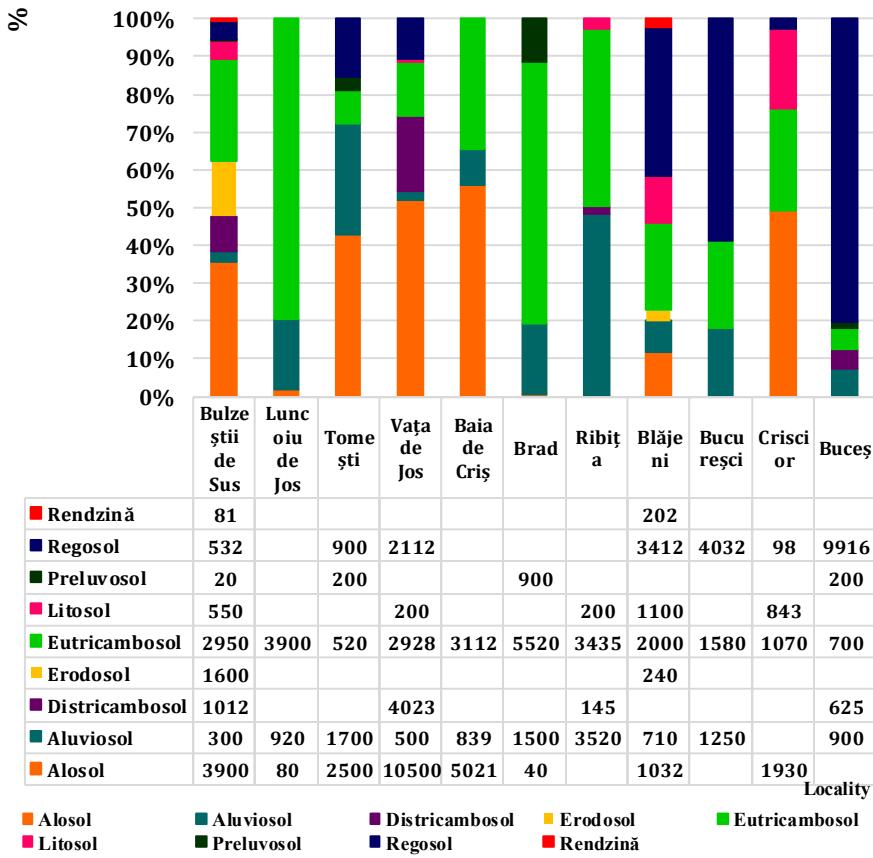


Fig. 2. The areas and shares occupied by the soil types identified in localities from Depression of Brad

The largest areas are occupied by the classes: Cambisols (with the Eutricambisol type), Luvisols (with the Alosol type) and Protisols (with the Regosol type). The smallest areas are occupied by the classes Antrisols (with Erodosol type) and Cernisols (with Rendzina type), to which is added a class of soils already mentioned for the category which soils occupying the largest areas, respectively Luvisols, but which by the type Preluvosol also falls into the category of those who occupy the lowest areas. Thus, Eutricambosols occupy the largest area, equal to 27,715 ha, which

corresponds to a proportion of 28.28% of the total area studied. Alosols occupy 25,000 ha (25.51% of the total studied area) being followed, in descending order by: Regosol with 21,000 ha (21.43% of the total studied area), Aluvosol with 12,139 ha (12.38% of the total studied area), Districambosol with 5,805 ha (5.92% of the total studied area), Lithosol with 2,893 ha (2.95% of the total studied area), Erodosol with 1,840 ha (1.88% of the total studied area). To those, there are added Preluvosol with 1,320 ha (1.35% of the total studied area) and Rendzine with 283 ha representing 0.3% of the total studied area.

CONCLUSIONS

The study carried out on the types of soil in the Bradului Depression highlights the fact that the largest areas are occupied by: Eutricambisol (Cambrisols class), respectively the area of 27,715 ha (28.28% of the total studied area); Alosol (Luvisols class), respectively the surface of 25,000 ha (25.51% of the total studied area) and Regosol (Protisols class), respectively the surface of 21,000 ha (21.43% of the total studied area). The same study shows that the smallest areas are occupied by soil types: Rendzina (Cernisols class), respectively the area of 283 ha (0.30% of the total studied area); Preluvosol (Luvisols class), respectively the surface of 1,320 ha (1.35% of the total studied area), and Erodosol (Antrisols class), respectively the surface of 1,840 ha (1.88% of the total studied area).

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