

LAND USE IN A SUBCARPATHIAN DEPRESSION – SĂLĂTRUCEL COMMUNE, VÂLCEA COUNTY

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Abstract. Land use in a Subcarpathian Depression – Sălătrucel commune, Vâlcea County. The use of the lands from Sălătrucel Commune located in the Jiblea – Berslăvești Depression, at the contact between the Southern Carpathians – Cozia Massif and the Vâlcea Subcarpathians, bears the characteristics of the physical-geographical particularities, especially those of the relief configuration with the specific lithological structure. The Jiblea – Berslăvești Depression was a favourable geographical area for early settlement, which also attracted important changes in the natural landscape reflected in the current structure of land use.

Keywords: relief, lithology, climate, land use.

INTRODUCTION

Commune Sălătrucel is situated in Jiblea–Berslăvești Depression, Vâlcea County, at the contact between the Southern Carpathians - Cozia Massif and the Vâlcea Subcarpathians and has in its composition 4 villages - Sălătrucel, Seaca, Pătești and Șerbănești (Fig.1).

The population of the commune had at the level of the year 2018 had a number of 1983 inhabitants (Sălătrucel, the residence of the commune - 1078 loc., Seaca - 107 loc., Pătești - 115 loc., Șerbănești - 683 loc.). Compared to 2149 inhabitants in 2016, the curve being in a continuous decrease compared to 1992 when there were 2431 inhabitants. This decrease may be due primarily to a decrease in the number of new-borns, and then to an increase in the migration of inhabitants to neighbouring urban areas, as well as an increase in mortality.

The first documentary attestation of the locality was made on April 17, 1488, by the Voivode Vlad Călugărul who strengthens all the previous given privileges to the Cozia Monastery through the Charter no. 212. Much later, the locality of Sălătrucel is mentioned in a document from May 25, 1795 in which "*the former herotors demand back the lands they were dispossessed during the reign of Ioniță Ungurelu*" (Petrescu, 2007).

Until 1908, the commune of Sălătrucel had in its composition the villages Seaca and Sălătrucel, and from 1938 by the dissolution of the former

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commune Șerbănești-Pătești it was included in the composition of Sălătrucelel (*Monograph of communes and cities in Vâlcea County, 2007*).

Sălătrucelel commune has in its composition 4 villages: Sălătrucelel (1078 inhabitants), Seaca (107 inhabitants), Pătești (115 inhabitants) and Șerbănești (683 inhabitants), a total population at the level of 2018 of 1983 inhabitants.

There is a decrease in the number of inhabitants from 2016, with 2149 to 1983 inhabitants, in 2018, the curve being in a continuous decrease compared to 1992 when there were 2431 inhabitants. This decrease may be due primarily to a decrease in the number of new-borns, and then to an increase in the migration of inhabitants to neighbouring urban areas, as well as an increase in mortality.

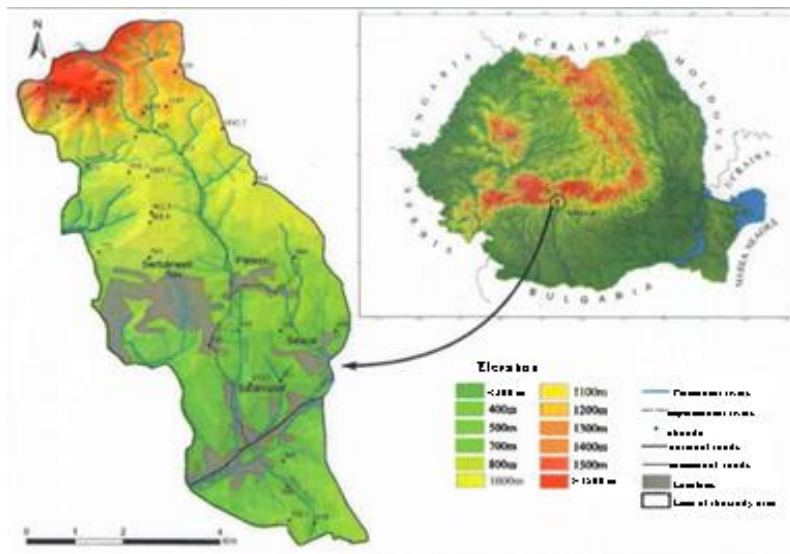


Fig. 1. The geographical position of Sălătrucelel commune at the level of Romania
(Source: Achim Manolache Daniela, 2010)

Physical – geographical characteristics

The complex geological composition of the rocks in the Sălătrucelel river basin, both from the point of view of the rock structure and from the point of view of age, being encountered rocks from the oldest (crystalline rocks from the Cozia Mountains), to the youngest, Pliocene and Quaternary, led to the appearance of a varied relief. Sălătrucelel commune is located on monoclinic geological formations formed in the lower Miocene and Paleogene in the south and in the north syncline formations belonging to the Getic Canvas formed in the upper Precambrian, with sandstone intercalations, limestone, Cretaceous

marls. Thus, in the northern part of the commune are identified crystalline rocks (mica-schist, gneiss, para-gneiss).

In the central-southern part of the commune there are limestones and calcareous sandstones, in the northern part sandstones and limestones, in the south-eastern part conglomerates, sands and marls, and in the southern part we find gravels, marls, clays and gypsums. There is another category - gravels, sands and loess deposits, which crosses from north to south and from east to west the entire commune (Daniela Paula Achim, Florin Achim, 2013).

Hypsometry. The Sălătrucel hydrographic basin, overlaps “a hilly relief, for the most part, and mountainous on a relatively small surface, it develops between the altitudes of approximately 270 m (at the mouth of the Sălătrucel in the Olt River) and 1666.6 m (in Cozia Peak). Thus, the altitudes increase from south to north. Within the Sălătrucel basin we can speak of an unequal distribution of altitudes”. The hypsometric step characteristic to Sălătrucel has values between 250 and 500m. Thus, the hypsometric curve between 250-500 m is characteristic of Sălătrucel village, while the curve that crosses the localities of Pătești, Seaca and Scăueni corresponds to the hypsometric area with values of 500 m (Achim Daniela Paula, Achim F., 2013) (Fig. 2).

The relief is the result of an interaction between the lithological structure, the processes of subaerial modelling - freezing and thawing, landslides, fluvial erosion over time. The relief grafted on cover deposits made of clays, sands and gravels is fragmented resulting in deep valleys, almost parallel peaks, elongated from N to S to which is associated the major and minor riverbed of the main hydrographic artery of the Sălătrucel river that drains the entire urban area of the homonymous locality. The scale of current processes has also been influenced by human activity, due to the long period of habitation.

The climate is continental-temperate, with an average annual temperature of 9.7°C (average temperature in January is -1.5°C, and in July 19°C). The annual amount of precipitation varies, the annual average being 750-800 mm. the highest amounts of precipitation fall in the northern part of the commune, on the top of Cozia Mountain, where the values reach 850-1200 l/m² in June.

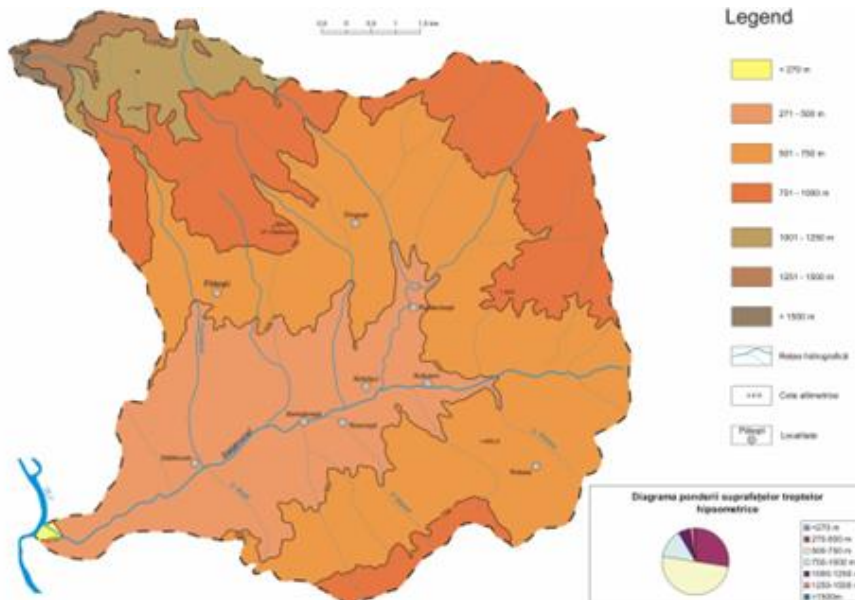


Fig. 2. Sălătrucel river basin - hypsometric map
(Source: Achim Daniela, Achim, F., 2013)

From a *hydrographic* point of view, Sălătrucel locality with all the component settlements is included in the Sălătrucel-Coisca hydrographic basin with predominant extension in the Vâlcea Subcarpathians and the southern slopes of the Cozia Mountains. At the confluence with Olt River, it is also associated with groundwater fed by precipitation that ensures the normal conditions of agricultural crops and water supply of localities (Achim Daniela Paula, Achim F., 2013).

Vegetation, from the forest with the altitudinal layer (spruce, beech-spruce and beech forests), to the azonal meadows (predominant with the black alder), the vegetation of the degraded lands (green alder, sea buckthorn, hawthorn, rosehip, dogwood, etc.).

Soils, due to pedogenetic processes are characterized by a diversity of soil types and subtypes. Thus, acid brown soils and luvisc brown soils are found in the space of beech-spruce and beech forests, hydrisols in the meadow sector at the confluence of Sălătrucel and Olt and erodisols on deforested areas and used for agricultural holdings. The current state of the soils is determined both by the natural conditions in which they are found and by the way of management (existing arrangements, application of correct methods in agriculture and cultivation technologies).

METHODS AND RESOURCES

In carrying out the geographical study of land use in Sălătrucel commune, the method of analysis and observation were used (by making field trips with which an image could be formed on the general characteristics), the method of collecting bibliographic information and the data processing method (from the Local Council, as well as from the National Institute of Statistics).

Quantitative and qualitative evaluations were elaborated, which highlighted the share of different types of existing surfaces in the analysed commune. Also, a relationship was made between the geological and geomorphological elements needed to establish a correct topology of land use.

Regarding the use of data, the site of the National Institute of Statistics was accessed, from where information was obtained on the division into basic administrative-territorial units, at locality level. The analysis of these data was carried out sequentially, in several stages and the results obtained through graphs and diagrams were highlighted.

RESULTS AND DISCUSSION

Land use is an area of major importance, there are currently a multitude of issues that Romanian law and land management have not fully addressed.

Sălătrucel commune has a stepped relief, which facilitates a diversified use of land, both in terms of agriculture and development of forests and pastures, this being closely related to the existing petrographic identifications in the commune with the following structure of land use in village:

- deciduous forests, mixed forests and coniferous forests in the northern part,
- built-up area, orchards, deciduous forests and pastures in the central-southern and southern part of the commune,
- deciduous forests in the north-central part,
- deciduous forests, pastures and built-up area in the southern part,
- arable land, built-up area and orchards in the whole part that crosses the commune from north to south and from east to west,
- and pastures and deciduous forests in the south-eastern part of the commune.

The analysis of the dynamics of land use shows an evolution of this process determined by the method of comparison between two reference periods. For the commune of Sălătrucel, this comparison was made for the period 1992, respectively 2016 and 2018.

As a first characteristic regarding the changes that occurred within the analysed area, an increase of the **built area** is observed. Thus, in 1992 it was 7%

(274 ha) of the total, in 2016 - 12% (474 ha), and in 2018 - 13.13% (523 ha). This aspect can be due to the expansion of housing, the growing needs of the population, but also the development of infrastructure (electricity, communications, road, etc.).

Forests are a dominant category in land use, representing in 1992 about 47%, while in 2016 and 2018, only 44% of the commune's total area. The values of agricultural land, pastures and orchards also decreased significantly (Fig. 3.).

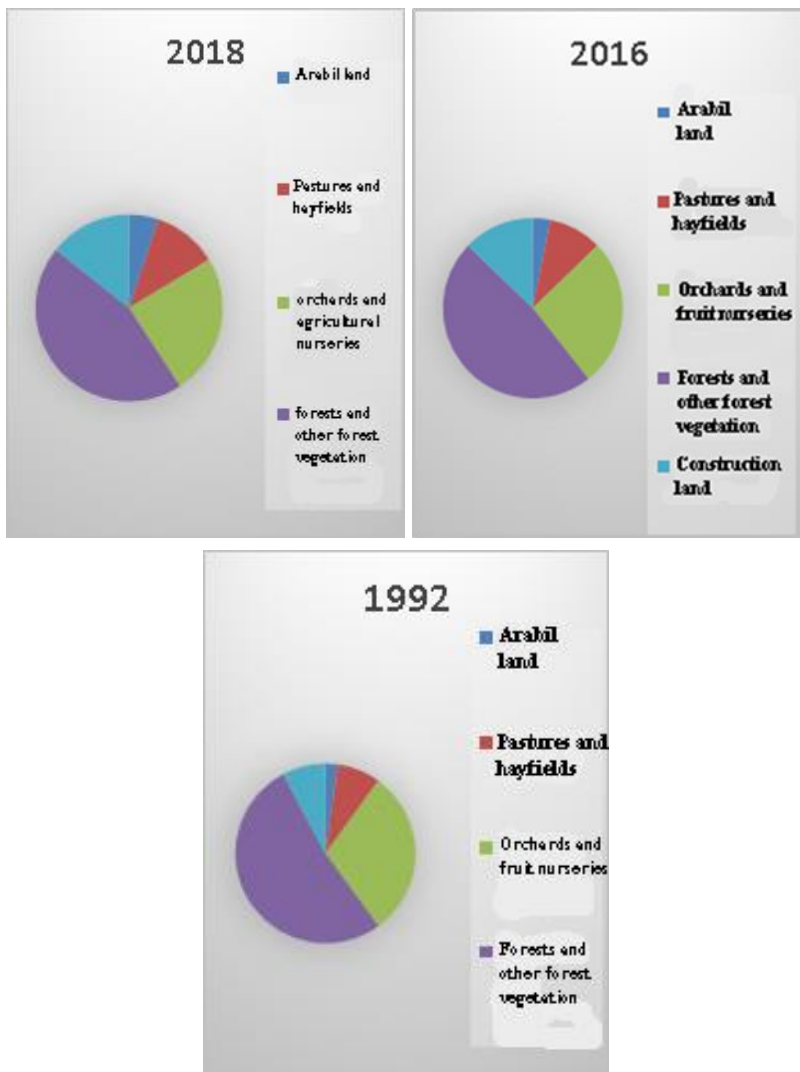


Fig. 3. Comparative evolution of land use in Sălătrucelel commune.

The area of orchards decreased by about 7%, from 27.16% in 1992 to 20.66% in 2018, while the area of hayfields increased, which also led to an increase in animal products (eggs, milk, meat).

The arable lands did not have a pronounced character until 1992 when they represented 0.12% of the total area of the commune, but a slight increase can be observed at 0.6% at the level of 2016, and 1.3% at the level of 2018, respectively. .

Current land use. The urban area of Sălătrucel commune represents at the level of 2018 approximately 13% of the total area, respectively 87% outside the city. According to statistical data, the urban area is composed in 2018 of 1200 households, in 2016 of 1017 households, compared to 1992 when there were only 822 households. In addition, in 2018, there are 3 health units (1 pharmacy, 1 dental office, 1 medical dispensary), 2 educational units (1 school, 1 kindergarten), 4 cultural units (2 cultural centres, 1 library, 1 tourist information centre), 14 shopping centres, a town hall and a church.

The road infrastructure is represented by the county road DJ 703G, which connects with the town of Călimănești and the commune of Berislăvești, as well as the communal road DC 13 (Sălătrucel-Șerbănești).

- **Electrical infrastructure;**

- **Water supply network.** The length of the drinking water supply network was 13.44 km in 2018.

- **Telephone network.** The locality is connected to the digital telephone network, on fibre optic cable, overhead and underground.

- **The cable television network** is represented by the company SC RCS-RDS S.A.

Regarding the analysis of the land fund, the locality has an area of 4056 ha, of which agricultural area 1791 ha, representing arable 263 ha, pastures 582 ha, hayfields 838 ha, orchards 1008 ha; forests and other lands 1948 ha, waters 85 ha, roads 59 ha, constructions 33 ha, non-productive lands 108 ha.

The traditional economic activities are: animal husbandry, fruit growing, agriculture, forest hauling, and as crafts pottery, carpentry and carpentry.

The area of arable land is not a dominant category of land use. A peculiarity of the commune is that if at the level of 1992 the developed arable lands occupied 0.12% of the total surface of the commune, later they were developed, reaching an area of 1.3% of the total surface (at the level of 2018).

The arable area is divided into two categories: the area cultivated with cereal plants (corn, wheat, and oats) and the area cultivated with other types of plants (potato, roots, vegetables, strawberries). Usually, the central space of the depression is favourable for corn and potato crops, and on the southern marginal hills are planted fruit tree plantations, especially plums, sour cherries and apples.

The first category is the most representative, the arable land used for cereal cultivation represents 72.3% of the total arable area. Corn is the most cultivated cereal plant, having the highest production, out of the total area cultivated with cereals. At the level of 1992, it occupied an area of 44.3%, reaching up to 84.4% at the level of 2018 (Fig. 4).

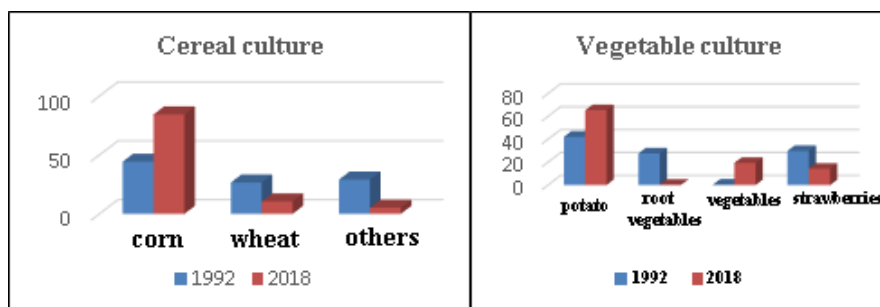


Fig. 4. Evolution of cereals and vegetables production from total agricultural area (1992, 2018)

The detailed analysis of the area cultivated with potatoes and vegetables occupies in 2018 approximately 27.7% of the total arable area. The predominant crops are potato crops (approximately 65.5%), root crops (0.28%), vegetables (19.34%) and strawberries (14.23%) (Fig.4.).

The surface of the orchard lands in the area decreased between 1992 and 2018. If at the level of 1992, it occupied 27.16%, at the level of 2018 it occupies an area of only 20.66% of the entire surface. The main types of fruit trees found are: plum (68.8% of the total area of orchards), apple (24.5%), pear (3.5%), apricot (2.15%) and walnut (1,05%).

The surface of the pastures in Sălătrucel commune changed during the study period. They appear in the northwestern part of the commune, and their surface has changed from 7.03% in 1990, to over 10.95% in 2018. The areas occupied by pastures and hayfields have favoured during the activities such as animal husbandry, an occupation that has also generated an increase in economic income. The main animals that are bred are cattle (340 heads), sheep (850 heads), goats (110 heads), horses (45 heads), pigs (1300 heads), bee families (500 families), birds (3200 heads).

Agricultural production of animal origin is characterized by major differences between the three years of analysis. It has focused on egg production (619,000 pieces in 1992, respectively 1,890,000 in 2018), wool production (which was 3219 kg in 1992, respectively 1,870 kg in 2018), milk production cow and buffalo (which was 877,400 l in 1992 and 1,333, 700 l in 2018).

The forested area occupies 44% of the total area of the commune, and is found, in particular, in the northeastern part of the commune. Thus, the forested

area is varied, with deciduous species, especially beech (up to an altitude of 1200 m), and above (at altitudes between 1250 and 1650 m) are found coniferous forests. Deciduous forests are the most common (45.5%) noting: the interface of Eurasian species with southern ones, to which are added the Carpathian and local ones. Typical are hornbeam, beech and lime (Berbece V., 1984) Coniferous forests have small areas within the commune, occupying in 2018, only 1% of the commune's area. The main types of conifers are: spruce, fir and pine.

CONCLUSIONS

The use of the lands in Sălătrucel Commune from the Jiblea - Berislăvești Subcarpathian Depression grafted on a hilly relief with different exposures of the slopes bears the imprint of the changes determined by the long human activity. By expanding the human settlements, it attracted a mosaic use of land, predominating cereal crops (corn, oats) and fruit growing, especially plums, all to the detriment of the forest fund.

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