The diversity of the landscape and the morfostructural types of settlements in the district of Râu de Mori

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Abstract The performed study evidentiates the influence of the natural landscape over the morphostructural types of settlements from the Râu de Mori district. It is known the fact that it is the largest district from the Hunedoara county and it has a surface of 38 782 ha and it is the only one that has in its structure four mountain massifs (Retezat, Piule-Iorgovanu, Țarcu și Godeanu), three major units of the relief and also the first National Park from the country (Retezat). Also, there are presented the biodiversity elements from the territory of this beautiful district from the Carpathians.

Key words landscape, morphostructural types, biodiversity

The Hunedoara county has always offered, due to its exceptional physical conditions, a lot of places in which people settled down. Traces of the inhabitants from the district of Râu de Mori date back to the prehistoric period. On the territory of the district were discovered pieces of ceramic and silex chips from the neolithic and from the bronze age. In 1359, it appeared the first documentation about the Cnezat of Râu de Mori ruled by the Cândea family that was made of 8 villages. In 1459, the Cândea family added another 12 villages to its domain [17].

A special importance in the history of the district Râu de Mori have the other two villages that were not a part of the Cândea Cnezat from Râu de Mori. The village Ostrov was mentioned for the first time in 1360; today it is separated in Ostrovul de Sus and Ostrovul de Jos. In 1360, it is mentioned for the first time the village Clopotiva, [15]. Starting from the 15th-17th centuries, the rulers from Râu de Mori receive land from Iancu de Hunedoara and his son Matei Corvinul, from now the two villages Ostrov and Clopotiva would become the possession of the Cândea family.

Material and Methods

The working methodology was:

→ bibliographic study;

→ field visits in the purpose of:
- direct observation and the analysis of the natural and antropic landscape diversity;
- the analysis of the existent relief;
- the identification of some biodiversity elements;
- taking pictures;
→ the analysis and the description of the landscape;
→ the analysis and the description of the morphostructural types of settlements;
→ the selection and the presentation of the most representative elements of biodiversity from the studied area.

Results and Discussions

The district of Râu de Mori is a part of the region Țara Hațegului and it is situated in the south-western part of the Hunedoara county at the intersection of the 45 30’ north parallel latitude with the 22 55’ meridian east longitude, on a surface of 38 782 hectares. The borders of the district are: W - Sarmizegetusa, N - Totești, E - Sălaşul de Sus, SE - The Petroșani depression, S - The Gorj county and the southern border is the same as the southern border of the Hunedoara county (Fig. 1). The county communicates with the other regions through the national road DN 68; this road has also connections with other local and county roads.
The diversity of the landscape is given by the positioning of the district between the high piemontan plain, in N, that is a part of the Hațeg depression, and the Retezat Massif in the center and S-E. In the western part of the district there is a part of the Țarcu Massif represented by the peaks Pietreanu and Gugu. In S and S-V there is the northern side of the Godeanu Mountains represented by the peaks Micușa, Galbena, Păltinaș, and in the S-E the limestone Massive Piule-Iorgovanu, that is a part of the Retezat Massive, and it offers a special limestone relief.

The divers landscape is due to the presence of three units of relief: plain, hill and mountain, on the district of Râu de Mori (Fig. 2).

The low piemontan plain of the district is found on the right side of the river Râu Mare and it is present in the following villages of the district:
Ostrovul Mare, Ostrovul Mic, Ucniuc, Sibișel and Râu de Mori. The high piemont plain is the result of the erosion and the accumulation action of the watercourses that are descending from Retezat and it is specific to the villages: Clopotiva, Râu de Mori, and Suseni.

The piemontan hills are specific to the area of Sibișel and Valea Dâljii and they have altitudes between 1200 and 1600 m. The little mountains come from the fragmentation of a piemont and they can be found on Valea Sibișelului, Valea Dâljii, Valea Râuşorului and around the villages Clopotiva, Sibișel and Valea Dâljii, the are characterized by an elongated and slender appearance.

In the district there are four important masses of the Retezat-Godeanu group: Retezat with Piule-Iorgovanu, Țarcu și Godeanu. These mountain massifs have a special contribution to the appearance of the district because they create a semi-mountain territory in the studied area and also they have a successful contribution to the promotion of the mountain tourism and of the agro tourism.

The area is delimited from the surrounding mountain areas by differences of level that have hundreds of meters, a remarkable one is located on the northern slope of Retezat and it has over 600 m.

The area has a rich hydrographic network, the territory of the district is crossed by numerous creeks that come from the four massifs and this fact offers the district a real hydro-energetic potential. The natural lakes from the mountain area of the district are tourist attractions and the anthropic lakes represent an important source of hydro-energy (Fig. 3).

**Morphostructural types of settlements in the Râu De Mori district**

The capital of the district is the village Râu de Mori, the district has 11 villages that are situated on the valleys of some rivers as: Râu Mare, Sibișel, Râuşor. Depending on the number of inhabitants, the villages of the district are considered to be small villages (Table 1).

**The number of the inhabitants from the villages of the Râu de Mori district**

<table>
<thead>
<tr>
<th>Villages</th>
<th>Number of Inhabitants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohaba – Sibișel, Ostrovel, Ostrovul Mic, Suseni, Ucniuc</td>
<td>100-200</td>
</tr>
<tr>
<td>Brazi, Sibișel, Valea Dâljii</td>
<td>201-301</td>
</tr>
<tr>
<td>Râu de Mori, Ostrov</td>
<td>302-500</td>
</tr>
<tr>
<td>Clopotiva</td>
<td>500</td>
</tr>
</tbody>
</table>

The structure and the texture of the villages are connected to the environmental and geographic conditions, the degree of exploitation of the local resources and the socio-economic development of the district. The villages of the district have a very similar structure and texture (Fig. 4).

Fig. 4 The map of the villages from the Râu de Mori district (Varan, 2011)

The villages Ostrov, Ostrovul Mic and Unciuc are meadow and piemontan interfluval villages that have an extension of the low level. Their structures are specific to the gathered villages in which the density of the houses is directly proportional with their economic power [15]. The heart of the villages has an irregular street network around which the houses and the gardens are tightly grouped. The houses are aligned at the street, this has become an almost general rule that accentuates the concentrate appearance of the village. Their texture is irregular and is has a linear form with short and rare lateral ramifications and with the houses situated on the both side of the street [14].

The villages Clopotiva and Brazi are situated above the level of the river in order to be protected by the floods. Also, they are situated at this level due to local morphosculptural processes. These two villages have an intermediary structure of a spread type where the heart of the village has a well-defined position. The street network is complex and sinuous and the form of the house distribution is linear (Brazi) and tentacular (Clopotiva). The village of Clopotiva has a complicated texture with sinuous street, but this is not determined by the irregularities of the surface. The texture of Brazi is linear, the houses are situated on the both side of the street. Râu de Mori, Suseni and Valea Dâljii are villages of valley couloir and they are formed on the bottom of deeper valleys with a flat aspect with fragmentatet terraces and slopes with various restrictions for building houses [14]. The heart of the village Râu de Mori is more complex because it has valorized the position of the river Râuşor in the low piemontan plain. The structure of these villages is intermediary of a spread type, with a tentacular form and the texture of the streets is complicated. Along the streets the fruit gardens have a linear disposition and they continue in the back of the houses, until the piemontan slopes.

The villages of Ohaba-Sibişel and Sibişel are meadow villages and they have some discontinuities. The structure, the texture and the streets are almost similar to the villages of Râu de Mori and Suseni. The village Ostrovel is situated at the contact between the meadow and the terrace and it is threatened by the slope torrents and the landslides. The heart of the village concentrates most of the houses. The structure is of a gathered village with a linear texture and an irregular shape. The houses are situated along the streets.

The administrative territory of the district has 15,938 ha, of which 13,937,22 ha are the agricultural surface, and 285,67 ha are not used for the agriculture(Fig.5). The agricultural surface consists in: grass lands 1752 ha (4, 53%), grazind lands 10402 ha (32,61%) and tree gardens 174 ha (0,19%). The terrain that is not used for agriculture has a surface of 58,18% and it is mostly represented by forests 16544 ha (19,60%) (Fig. 5).
Biodiversity elements

The geographical position of the Râu de Mori district with three major relief units created the conditions for growing cereals, green crops and potatoes. The most cultivated plants in the district are: wheat, rye, barley, and oat, green cops: clover, lucerne and also numerous vegetables. Growing various crops is a traditional activity that ensures the food for animals and also it ensures important quantities for the human consumption.

The Flora from the Râu de Mori district is very diversified in the high and low piemontan plain, the piemontan hills, the little mountains and also in the three mountain massifs.

In the massif Țarcu we can have at altitudes of 1600-1800m, on the level surfaces and on the higher peaks, a vegetation of alpine meadows and bushes in which we can find (Festuca rubra), (Nardus stricta) and (Festuca ovina). At the limit with the forest we can find (Pinus mugo), (Juniperus sibirica), (Rhododendron kotschyi), (Vaccinium myrtillus) and (Vaccinium vitis-idaea). In Custura Mătaniei we have (Pinus cembra). The biggest surface of the Mountains Țarcu is covered with forests. The most frequent are the forest with beech (Fagus sylvatica), spruce (Picea abies) and fir (Abies alba), that are well developed in the area of the rivers Râul Rece and Bistra on the Muntele Mic. A special presence is the birch (Betula verrucosa), which can be found until the altitude of 1700 m. In the limestone area from Făța Fetei we can find (Leontopodium alpinum), a monument of nature. In the detritus areas we can find meadows with (Juncus trifidos). The plants with decorative flowers are: (Campanula alpina), (Loiseleuria procubens), (Geum montanum), (Gentiana praecox), (Dianthus compactus).

In the Godeanu massif, the beech and spruce forests are growing on the slopes until the altitude of 1450-1 550m. The junipers cannot be find on large areas, it is found sometimes on the north slopes that have shadow, or in the glacial valleys.

The subalpine grasslands go until 1700-1800m and they are composed of: (Agrostis tenuis) and (Festuca rubra fallax), and because of the intense grazing they are invaded with (Nardus stricta). Until the altitude of 2 000 m, these plants are replaced by (Agrostis rupestris) and (Festuca supina). On the high and smooth chines, the most frequent herb is Carex curvula. There are lots of species with coloured flowers: (Dianthus), (Campanula sp), (Hieracium aurantiacum), (Gentiana sp), (Dryas sp), (Loiseleuria procumbens), (Potentilla ternata) etc. In the glacial circus we can find bushes of (Rhododendron kotschyi), and in the limestone areas from the mountains of Iorgovanului and Stânuleiții, we can find (Leontopodium alpinum). In the region of the river Șes we can find frequently bushes of blueberries (Vaccinium myrtillus).

The Massif Retezat is renowned for the floristic diversity and it shelters 1190 of superior plant
species from the 3450 that are known in Romania. A great importance has the 130 rare or vulnerable plants from the Red list of the superior plants from Romania published in 1994. The alpine vegetation with short period of vegetation it still exists in the high areas of the Rezat Mountains and it is developing on the primary soils that have a severe climate. The characteristic element of this altitudinal level consists in the presence of the grassland with (Carex curvula), (Juncus trifidus), (Festuca supina) that alternates with little bushes of cranberries (Vaccinium vitis idaea), blueberry (Vaccinium myrtillus), (Drias octopetala).

The subalpine vegetation has large surfaces in the Rezat Mountains and it partially preserves the characteristics of the alpine vegetation, a series of herbs: (Agrostis rupestris), (Festuca violacea), (Nardus stricta), (Juniperus sibirica), (Pinus montana), (Salix herbacea, Salix reticulata) and the (Rhododendron kotschii). In the alpine and the subalpine area are localized a few endemic species, in this level of altitude there are a few species that are declared monuments of the nature: (Leontopodium alpinum), (Gentiana lutea), (Cypripedium calceolus), orchideea (Leocorchis frinaldskyana), (Dryas octopetala) and (Angelica archangelica).

The conifer forests are present between 1300-1800 m and they are formed of spruce (Picea excelsa), fir (Abies alba), (Pinus cembra). In the mixt forests we have species as: beech (Fagus sylvatica), spruce, fir, (Ulmus montana), (Acer platanoides), oaks (Quercus petraea), (Quercus robur), (Acer campestre).

In the areas of the little mountains and piemontan hills of Râu de Mori there is a flora that is specific to the mixt forests (Quercus frainetto), (Quercus cerris) (Quercus petraea), (Cornus mas) (Cornus sanguinea).

In the plain area of the district, we have a lot of (Sambucus nigra) and forests of (Quercus cerris) and (Quercus frainetto).

The Fauna in the area of the district is much diversified. In the mountain area we have a series of animals that are strictly protected: (Rupicapra rupicapra), aquila (Aquila physaetos), (Cervus elaphus), the brown bear (Ursus arctos), (Tetrao urogalos), the wolf (Canis lupus), (Lutra lutra), lăstunul de stâncă (Ptyonoprogne rupestris), (Eremophila alpestris), (Turdus torquatus), (Lutra lutra), (Marmota marmota), and also a few endemic and rare species as: Parsaussi mamosynae transsylvanicus, Coenonympha tullia schmidtii, Psodos coracina diosezei, Abrostola agnorista, Conisania poelli, Colostgia collarliaria etc.

In the hill and plain area we can find: (Capreolus capreolus), the wild pig (Sus scrofa), the rabbit (Lepus europaeus), (Citellus citellus), the fox (Vulpes vulpes), (Coturnix coturnix), (Bureo buteo), (Ciconia ciconia), (Streptopelia deacoacto), (Cucullus canorus), (Bubo hubo), (Upupa epops), (Dendrocopyos minor), (Hirundo rustica), (Parus major), (Turdus merula), (Sturnus vulgaris), (Pica pica). A lot of the mountain lakes and the superior courses of the rivers are rich in trouts (Salmo trutta fario).

Conclusions

The traces of human living on the territory of the Râu de Mori district date back in the prehistory (neolithic and the bronze age).

The district has 11 villages that are situated along the river valleys that come from the four massifs, this fact offers the district an important hydro energetic potential.

The administrative territory of the district Râu de Mori, 15,938 hectares, is evenly distributed between arable surfaces for the agricultural production (meadows, grasslands and fruit gardens) 41,82% and a non-agricultural surface 58,18 % (mainly forests).

The structure and the texture of the settlement network are determined by the varied geographical background conditions (three major relief units with great altitudinal differences - this offers the landscape a spectacular appearance and a specific microclimate), the low degree of exploitation of the local resources (reduced accessibility and the lack of modern infrastructure) and the specific historic and socio economic development of the district.

The relief energy and the geodesicity, the disposition of the main peaks like and open fan, the exposure of the slopes, the nearby depressions and the valley corridors, are only a few elements that provide natural diversity and beauty to the landscape of the district.

The unique elements of biodiversity, the flora, the fauna and the intact natural landscape from the Râu de Mori district, the area of the high and low piemontan plain, the piemontan hills and the little mountains and also the massifs have a large recognition in the national and international scientific community as a part of the Natural and Cultural World Patrimony.

References