VEGETATION ASPECTS IN THE LAPUS REGION

Amalia ARDELEAN

West University " Vasile Goldis" Baia Mare

Abstract:
The climate particularities, the variety of the landscape, the different nature of the rocks, the complexity of the goemorphological area (level difference of 1800m, different expositions, the grate amplitude of the slopes and soil types) are elements thich determined the existence of a rich and divers vegetation, grouped in more types of stations and vegetal associations. After the field trips I have identified in Lapus Region, in 3 floors of vegetation: 34 vegetal associations (11 classes, 15 orders and 24 aliances)
Keywords: Lapus region, vegetal associations, local factors

The Lapus Region is administrative integrated to the Maramureş county, occuping the south-east of it. The Lapus region is located in the north-west of Transylvania hollow and under the shadow of Tibles and Satra mountains. Concerning the natural backround and geographical limits, the Lapus Region is situated in a intramountainous hollow oriented to the south. Due to interference settlement of European climate zones and complexity of forms of relief have resulted a great variety and diversity of vegetal species.

The physical-geographical area where the Lapus region overlaps approximately over the upper and middle of the river with the same name. Concerning the natural and geographical limits, the Lapus region is situated in an intramountainous hollow oriented to south, which is based to the north by the volcanic mountains of Tibles and Lapus, opens to the south over the Boiului Plateau and Breaza Peak to Somes Valley . In the west, Satrei Piedmont separates it by the Chioar historical country. To the south, where the area have borders with Salaj and Cluj counties is separated from them by Boiului Plateau, Vima hills and Breaza Peak. To Bistrita Nasaud county with which borders to the east, the zone is closed by Splaiului Hills and western versant of Tibles.

Starting with lowland, up to the highest peaks of mountains in the Lapus Region there are three floors of vegetation that include three underfloors of vegetation: hilly floor - the forests of hornbeam, hornbeam, mixed with other types of trees from the same class; mountain floor with lower underfloor (the hornbeam-beech) middle underfloor (of the beech forests and mixed beech with resinous) and superior underfloor (of spruce forests), subalpine floor – of shrubberry from high mouintain regions and the subalpine lawns. This floor distribution is due to the difference in altitude over 1800 m of substrate, of climate changes and of pedobiology

Local Influences have imposed variable limits on the floors of vegetation. However, in the dominant vegetation area, specific local factors have provided conditions for the development of intrazonal vegetal formations

▪ **Hilly floor** - the forests of hornbeam, hornbeam mixed with other types of trees from the same class. In forest composition in the layer of trees, enlightening is: *Carpinus betulus*. Along with him, we meet *Fagus silvatica, Acer campestre, Populus tremula and Betula pendula*. The layer of trees is well curdled and rich in species, being represented by: *Crataegus monogyna, Corylus avellana, Cornus sanguinea, Ligustrum vulgare, Rosa canina*. Herbaceous layer is rich in species, the most representative being: *Dentaria bulbifera, Asarum europaeum, Digitalis grandiflora, Festuca ovina, Helleborus purpurascens, Pulmonaria officinalis, Carex pilosa, Pteridium aquilinum*. In his prevernal appearance, the grassy carpet of hornbeam forests and hornbeam mixture of other trees from the same class is represented by: *Allium ursinum, Crocus vernus ssp. vernus, Scilla bifolia.*

The most common association is *As. Carpino - Fagetum*. This association meets in the following types of ecosystems: *"Fagus with Carpinus with Asperula" - Asarum - Stellaria, "Fagus and Asperula" - Asarum - Stellaria and "Fagus with Carpinus with Carex pilosa"*.

Where forests were cleared were installed secondary meadows, formed in a large majority of grasses, in addition, in smaller percentages, there are legumes, *Ciperacae* and other species with economic value and with colorfull flowers which refresh the monotonous appearance of grasses.

On the terraces of rivers, where the groundwater is at low depth, were installed mezohigrophile species.

Floristic composition of the meadows is very rich: *Agrostis alba, A. tenuis, Alopecurus pratensis, Anthoxanthum odoratum, Poa pratensis*. Besides grasses occur other species: *Achillea millefolium, A. spadicea, Capsella bursa-pastoris, Plantago lanceolata, Pl. media, Ranunculus repens, Taraxacum officinale*. In mezo-higrophile meadows we meet species as: *Cardamine pratensis, Carex distans, C. leporina, Campanula patula, Deschampsia caespitosa, Filipendula hexapetala, Juncus sp., Lychnis flos cucului, Ranunculus acris, Rhinanthus alectorolophus, Sanguisorba officinalis, Stachys silvatica, Symphytum officinale.*

In fitocenoses of secondary meadows we have identified the following vegetal associations: *As. Festuco rubrae – Agrostetum capillaris, As. Agrostetum stoloniferae.* In this vegetation floor large areas are invaded by *Nardus stricta*, which indicates the damage of zone.

Nardus stricta
(iulie 2008)

On sunny slopes, instead of cleared forests were installed shrubbery of *Prunus spinosa* and Crataegus monogyna.

On the river bank, dormant populations of *Salix purpurea, S. fragilis, S. triandra, S. alba, S. caprea, Alnus glutinosa, Sambucus nigra, forming As. Aegopodio - Alnetum glutinosae, As. Salice capreae - Sambucetum racemosae, As. Salicetum purpureae and As. Stellario nemori-Alnetum glutinosae*. In the layer of trees, near the willows and Arinus are present too: *Carpinus betulus, Padus racemosa, Populus nigra*.

Shrubs layer is well developed, being composed of: *Cornus sanguinea*, *Corylus avellana*, especially at the edges of glades and in more open places, *Ligustrum vulgare*, *Rubus sp.*, *Sambucus nigra*. From climbing plants is frequent *Calystegia sepium*.

Herbaceous layer is well developed and it is composed of herbs: *Leucanthemum vulgare, Filipendula ulmaria, Galium mollugo, Mercurialis perennis, Sisymbrium loeselii, Urtica dioica, Verbascum blattaria.*

In slough areas from Stoiceni, Libotin, Suci, Lapusului Valley appear populations of *Alisma Plantago - aquatica, Batrachium fluitans, Juncus effusus, J.*

inflexus, Lemna minor, Menyanthes trifoliata, Potamogeton natans, Ranunculus aquatilis, Scirpus lacustris.

In the intramontane hollows and valleys, at altitudes of 300 - 600 m were identified associations *As. Calamagrostio - Salicetum cinereae*, made of shrubberies of *Salix cinerea canesce* with *Calamagrostis* and *As. Salicetum albae - fragilis*, which is present in the type of ecosystem represented by Glade of *Populus nigra* with *Rubus caesius - Galium aparine.*

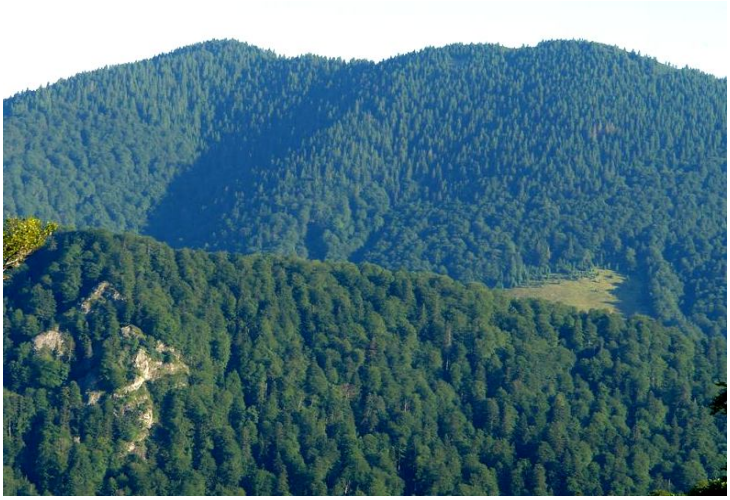
▪ **Mountain floor**

- Lower underfloor (of forests of beeches):

The characteristic vegetation of this underfloor consists of mixed forests of beech and hornbeam, forming *As. Carpino - Fagetum*. This type of association is characteristic for the following types of ecosystems: "*Fagus with Carpinus with Carex pilosa", "Fagus with Carpenus with Asperula "- Asarum – Stellari, "Fagus with Asperula" - Asarum – Stellaria*.

- Middle underfloor (of the beech forests and mixed beech with resinous):

The vegetal coating of this underfloor is varied. Dominate forests of "*Fagus with Carex pilosa* "and "*Fagus with Asperula" - Asarum – Stelaria*, but forest formation include also mixed forests of beech and hornbeam and beech with spruce and even beech with fir. In restricted areas, located in the bottom of the valleys, forests of beech, at their upper limit, reached the climax stage (Garden Face, Peak Pit, Prelucilor Spring, Corha Peak, Cârligătura, Arcer Spring - affected byfelled trees). Bunches of old spruce and beech are at the Bison Foot, Stone Stream, Setrita Peak. On the Minghet massive on Corha Valley are blending beech with sycamore for 110 years, and the Tibles Mountains at Elijah's Stream extends the shaft of sycamore of unexploited field of 100 - 120 years. But many old forests have been cleared or are in the process of deforestation. Instead, there are younger forests or bunches of plantations with different species of wood (beech, sycamore, fir, spruce).



Brush old spruce and beech to Stregior - Hudies-Horse Peak (July 2008)

On vertical side they have a large amplitude of spread (between 800-1000 m slope). These limits are influenced by climatic conditions and local edafice. The main species of the association is *Fagus silvatica.* Trees have generally large size and vigorous trunks, straight, forming closed forests. At high altitudes, are added spruce and fir and at lower limits the hornbeam. Other woody species encountered disseminated in these forests are *Acer campestre, Acer pseudoplatanus, Carpinus betulus, Ulmus glabra, Populus tremula, Salix caprea*. Shrubs are rare and belong to a small number of species *Sambucus nigra, Rubus hirtus, Vaccinium myrtillus, Corylus avellana, Rubus idaeus, Ligustrum vulgare*. The dominant association is represented by: *As. Coryletum avellanae syn. As. Rubo - Coryletum.*

Herbaceous layer is well developed, rich in species. The abundance of grassy species depend on the light. The species are: *Anemone nemorosa, Asperula odorata, Calamagrostis arundinacea, Campanula abietina, Carex pilosa, C. silvatica, Corydalis cava, Dentaria bulbifera, D. glandulosa, Deschampsia flexuosa, Euphorbia amygdaloides, Fragaria vesca, Galium schultesii, Geranium robertianum, Lamium album, Leucanthemum waldsteinii, Dryopteris filix-mas, Polygonatum verticillatum, Pteridium aquillinum, Pulmonaria officinalis, Salvia glutinosa, Symphytum cordatum, Veronica officinalis.*

The forests of beech belong to the following vegetal associations: *As. Symphyto cordata - Fagetum,* widespread in all the mountains, on land weak acid eubasics with flora of mull, *As. Symphyto - Fagetum, As. Hieracio round - Fagetum*.

At the upper limits of forests of beech, the beech is forming forests mixed with spruce, sometimes fir. In Tibleş Mountains there are identified the following

associations: *As. Leucanthemo waldsteinii - Fagetum* and forests of beech are mixed up with fir forming: *As. Pulmonario rubrae - Fagetum* on sunny and moderately inclined versants

In place of cleared forests there are areal fitocenoses of secondary meadows which form stretched clearings, both at underfloor limits and in the beech forests. Species that erect most frequently laxes in this underfloor are: *Festuca rubra, Agrostis tenuis, Deschampsia caespitosa, Anthoxanthum odoratum, Poa pratensis, P. nemoralis, Briza media, Trifolium medium, T. pratense, T. dubium, Chrysanthemum leucanthemum, Galium vernum, Dianthus carthusianorum, Knautia arvensis, Leontodon autumnalis, Achillea millefolium*. The most common association is: *As. Festuco rubrae - Agrostetum capillaris*, occupying large areas in the mountain floor to top of coniferous forests. The largest areas of these meadows are used as pasture. Due to intense grazing and soil subsidence on this occasion, those meadows pass gradually in phitocenoces dominated by *Nardus stricta*, forming *As. Violo declinatae - Nardetum* which degrades meadows and decreases productivity.

Along the mountain streams on the flooded gravels, installs populations of *Alnus glutinosa, A. incana, Cirsium oleraceum, Filipendula ulmaria, Geranium phaeum, Impatiens noli-tangere, Mentha longifolia, Myricaria germanica, Myosotis silvatica, Salvia glutinosa, Senecio nemorensis, Telekia speciosa, Tussilago farfara.*

Associations identified along mountain streams are: *As. Salici purpureae - Myricarietum, As. Telekio speciosae - Alnetum incanae.*

Compact forests of beech are interrupted in many places by a vegetation of forest cuts. On land recently deforested were installed provisional vegetation of herbs and bushes, populated with *Atropa belladonna, Calamagrostis arundinaceae, Chamaenerion angustifolium, Dryopteris filix-mas, Epilobium montanum, Milium effusum, Rubus idaeus, Sambucus ebulus, S. racemosa.* Asociația identificată este *As. Fragario – Rubetum.*

- Superior underfloor (of forests of spruce)

The vegetal coating of this underfloor is mainly represented by forests where spruce predominates and cleared land covered with secondary meadows. In this subfloor, detritus, intramountains valleys are covered with intrazonal vegetation the most extensive forests of spruce are in Tibles mountains and in Minghet mountain appear only fragmentarily on the north versants. On Varatec Massive populations of spruce are found in the form of intercalar enclaves in forest of beech.

Trees layer is heterogeneous, spruce being enlightening. In several places in the Tibles Mountains appears *Abies alba*, and at the lower limit is encountered *Fagus silvatica*. Bushes layer almost miss. Shrubs are present only in the outskirts of forests or in the clearings. But in some places, *Vaccinium myrtillus, V. vitis-idaea* form curdled layers. In the floristic composition of the herbaceous layer is

more commonly encountered: *Blechnum spicant, Calamagrostis arundinaceae, Campanula abietina, Deschampsia flexuosa, Dryopteris filix-mas, Geranium silvaticum, Homogyne alpina, Leucanthemum waldsteini, Luzula luzuloides, L. silvatica, Oxalis acetosella, Senecio fuchsi, Soldanella hungarica.* Associations are identified: *As. Hieracio rotundati - Piceetum, As. Leucanthemo waldsteinii - Piceetum, As. Sphagno – Piceetum, As. Luzulo silvaticae – Piceetum abietis, As. Pulmonarie rubrae – Piceetum.*

Large areas of coniferous forests were cleared in time for the expansion of meadows or for recovery of wood. In these territories, were installed secondary mezofile meadows. Among the species most common and characteristic of boreal meadows in the floor include: *Agrostis tenuis, Anthoxanthum odoratum, Campanula patula, C. napuligera, C. abietina, Centaurea jacea, Dactylis glomerata, Deschampsia caespitosa, Festuca rubra, F. ovina, Gentiana asclepiadea, Hieracium aurantiacum, Hypericum montanum, Leontodon autumnalis, Nardus stricta, Phleum montanum, Phyteuma orbiculare, Potentilla aurea, P. ternata, Prunella vulgaris*.The association identified is: *Soldanella major - Piceetum*. On the flat lands or low inclined, everywhere where they have long held the animals, instead of folds we meet: *Senecionion - Rumicetum alpini.*

Besides bucks, around the springs with the submission of gravel and with shallow layer of soil, were installed populations: *Adenostyles alliaria, Athyrium filix-femina, Cirsium oleraceum, Doronicum austriacum, Filipendula ulmaria, Geum rivale, Geranium silvaticum, Impatiens noli-tangere, Melandryum rubrum, Petasites officinalis, P. kablikianus, Solidago virgaaurea, Senecio nemorensis, Urtica dioica, Valeriana sambucifolia, Telekia speciosa*. Associations identified in these valleys are: *As. Telekio - Petasitetum hybridi* şi *As. Junco inflexi – Menthetum longifoliae.*

▪ **Subalpin floor** starts from the upper limits of the compact forests of spruce Tibles and Minghet Mountains.

At the upper limit of compact forests of spruce there are more rarely, the trees vegetate only in groups or appear solitary and the substrate is invaded by *Vaccinium myrtillus* and form limit forests of spruce. The association identified is: *As. Campanulo abietinae - Vaccinietum.*

Subalpine floor vegetation is characterized by the dominance of shrubbery and among bunches of shrubbery there are subalpine meadows. Limestone regions are dominated by calcicole vegetal forms. Regions with constant moisture around streams have a luxuriant vegetation, consisting of herbs and on the rocks are fragmentary installed, populations of saxicole plants.

Typical for the subalpine floor are shrubberies of *Pinus mugo*, forming compact associations, occupying a restricted area on the Tibles Peak. Jenupar are the primary vegetation in a climax stage. In the composition of built fitocenoses of *Pinus mugo* participates also other plants like: *Vaccinium myrtillus, Juniperus sibirica, Sphagnum nemoreum, Polytrichum strictum.*

In associations built by *Vaccinium myrtillus* appear other plants, like: *Lychnis nivalis, Campanula alpina, Pulsatilla alba, Melampyrum saxosum*. We meet on the large shrubberies of *Juniperus communis ssp nana* pn the upper limit of forests, on high plateaus and in the glade in the forest on the mountain floor.

In the past, the *Juniperus* occupied larger areas. Large jenuparete (paused with meadows or blueberries) are in Tibles Mountains. Here it can be distinguished the association: *As. Campanulo abietinae-Juniperetum*. In humid biotopes of springs there are: *Alnus viridis* and *Salix silvesiaca, S. hastata, S. caprea* form the following associations: *As. Salici - Alnetum viridis, As. Thyseto fusci-Salicetum hastatae.*

In humid biotopes were installed the high herbs fitocenoses with: *Aconitum tauricum, Rumex alpinus, Veratrum album.* Associations identified in the Tibles Mountains are: *As. Cirsio waldsteinii - Heracleetum transilvanicii, As. Adenostylo alliariae - Doronicetum austriaci, As. Aconietum taurici.*

Subalpine meadows are used in summer as pasture. Associations identified in these areas are: *As. Scorzonero roseae - Festucetum nigricantis, As. Potentillo chrysocraspedae - Festucetum airoidis* and the limestone substrate: *As. Festucetum saxatilis.*

As. Campanulo abietinae – Juniperetum
(cu Nardus stricta)
(august 2008)

Summary: Clime particularities, variety of forms of relief, the different nature of rocks, geomorphological area complexity (difference in level of about 1800 m, various exhibitions, big swing inclinations of slopes and soil types) and antropozoogene influences are elements that have led the existence of rich and

varied vegetation, grouped into several types of vegetal resorts and associations. Following the field trips so far we have identified in the Lapus Region, in the three floors of vegetation: 34 vegetal associations belonging to 11 classes, 15 orders and 24 alliances.

BIBLIOGRAPHY

Ardelean A., Maior C., 2003 – *Management ecologic*, Ed. „Vasile Goldiş" University Press, Arad

Ardelean A., Mohan Gh., 2006 – *Botanică sistematică*, Ed. „Vasile Goldiş" University Press, Arad

Ciocârlan V., 2000 - *Flora ilustrată a României*, Ed. Ceres, Bucureşti

Cristea V., 1991 - *Fitocenologie şi vegetaţia României. Îndrumător de lucrări practice*, Univ. Babeş-Bolyai, Cluj-Napoca.

Cristea V., 1993 - *Fitosociologie şi vegetaţia României*, Univ. Babeş-Bolyai, Cluj-Napoca

Nădişan I., Cherecheş D., 2002 – *Conservarea biodiversităţii maramureşene*, Ed. „Vasile Goldiş" University Press, Arad

Marinescu D., 2003 - *Tratat de dreptul mediului*, Editura All Beck, Bucureşti

Stancu, R. ş.a., 1977 - *Aspecte ale dezvoltării legislaţiei de ocotire a naturii în România*, Rev. Ocrotirea naturii şi a mediului înconjurător, nr. 2

Giurescu C. G., 1975 - *Istoria pădurii româneşti din cele mai vechi timpuri şi până azi,* Bucureşti, Ed. Ceres

Pop I., 1982- Ocrotirea naturii în R.S.R, Universitatea Babeş – Bolyai Cluj Napoca

Tutin T. şi colab., 1964-1980 - *Flora europaea*, Cambridge University Press, Cambridge

*** *Flora R.P.R şi R.S.R.*, 1952 – 1976 - Volumele I – XIII, Ed. Academiei Române

Rezumat:

Particularităţi climei, varietatea formelor de relief, natura diferită a rocilor, complexitatea geomorfologică zonală (diferenţa de nivel de aproximativ 1800 m, diferitele expoziţii, marea amplitudine a înclinaţiilor versanţilor şi tipurile de sol) precum şi influenţele antropozoogene sunt elemente care au determinat existenţa unei vegetaţii bogate şi diversificate, grupate în mai multe tipuri de staţiuni vegetale şi asociaţii vegetale. În urma deplasărilor în teren până în prezent am identificat în Ţara Lăpuşului, în cele trei etaje de vegetaţie: 34 de asociaţii vegetale aparţinând la 11 clase, 15 ordine şi 24 de alianţe.