Studia Universitatis "Vasile Goldiş", Seria Ştiinţele Vieţii
Vol. 21, issue 3, Jul.-Sep. 2011, pp. 659-664

THE NATURAL RESERVATIONS FROM LAPUS COUNTY

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ABSTRACT
The special natural patrimony from Lapusului County is characterized by a great richness, variety and diversity, being marked by three protected areas and having a scientific, touristic and beautifully scenery value: The Natural Monument "Babei Keys", The Natural Reservation "Arcer - Tibles" and The Natural Reservation of "Lapus Gorge". Field investigations have started from the following premise: serious damage of the environment, nature degradation, the need to preserve the integrity and diversity of nature and using natural resources in an equitable and durable mode.
The interactions between man and nature are and have always been permanently, but they have changed in time, taking place an involution or a degradation of the value of nature in people's perception.
Keywords: Lapus County, natural reservation, endemic species, rare species, red list

INTRODUCTION

The opportunity of phytosociological and ecological research in nature reserves of the Lapus County is supported by the following considerations.

The first aspect is that in terms of geobotanical, phytosociological and ecological vegetation of Lapus County is still little known and the existing scattered data in the speciality literature are wholly insufficient to provide a complete description of flora and vegetation in this area.

The second aspect concerns the fact that zonal plant associations characteristic for the area of mountain, hills, hollows, valleys, are missing from the bibliography the fitocenotic analytical tables showing their floristic composition and structure.

The third aspect, but not the least, is the fact that there is an updated scientific database, providing precise information regarding the inventory of rare species and the actual populations of rare and imperiled taxons .

The achievement of such a databases will allow the streamline of the actions of limiting human pressures, will allow also the establishment of effective conservation, restoration of habitats already affected by anthropogenic activities.

Conservation of natural habitats from Lapus County, valuable in terms of biodiversity, with endemic, rare and imperiled species, is made in protected areas of represented by the Natural Monument "Babei Keys" - was included in the list of protected natural areas by the decision of The County Popular Council no 204 / 1977, the Natural Reserve "Arcer - Tibles" and the Natural Reserve "Lapus Gorge", for which the first measures of conservation were established by the Decree no. 37 / 1994 of Maramures County Council, these areas were later confirmed by Law no. 152 / 2000.

Matherials and Methods

During 2006 - 2010 I made a series of ecological expeditions to assess biodiversity and habitat conditions of the three protected areas from Lapus County. Through field investigations and laboratory conditions has been established the diversity of natural habitats and the environmental main pedo-climatic conditions in which they are located. In the periods of vegetation of the years 2006-2009 I made a list of vascular planted species plants, have shown major associations and performed an initial assessment of rare plants from the area of study.

RESULTS AND DISCUSSION

The Natural Reserve "Arcer-Tibles" is administratively located on the territory of commune Grosii Tiblesului (Lapus County) and on territory of town of Dragomiresti (Maramures County). It has an area of 150 hectares and is located at an altitude of 1650 m in Ţibleş Mountains.

Tibles Mountains belong to Central-European floristic province, Southeast of the Carpathian Euro-Siberian region. Latitudinally are situated in the nemoral area of Central Europe underwoods forests and subarea of mesophilic forests.

Protected area includes a specific gap with subalpine vegetation, being located at the upper limit of spruce forest. Book is not guarded and is not removed from grazing.

Specific vegetation is characterized by the subalpine meadows and underwoods. Woody vegetation is represented by the underwoods of: *Pinus mugo, Juniperus communis, Vaccinium myrtyllus*. Meadows including: *Festuca ametystina, Festuca rubra, Deschampsia flexuosa, Nardus stricta, Anthoxanthum odoratu, Scorzonera rosea, Arnica montana, Dactyloriza fuchsii, Orchis ustulata, Lotus corniculatus, Viola declinata, Hypericum perforatum, Melampyrum saxosum, Lilium martagon, Oxyria digyna, Rosa pendulina, Pimpinella major, Ligusticum mutellina, Veratrum album, Prunella vulgaris, Phyteuma tetramerum, Polygala amara*.

Reserve has an important floristic, geological, landscape and touristic. The main purpose of the declaration as protected area is that of conservation of natural habitats, wild flora and fauna, of biological diversity characteristic.

The Natural Reserve "Lapus Gorge" has a geomorphological, geological landscape and touristic special value. Lapus Gorge is situated at the boundary between county of Lapus and county of Chioar. It has a length of about 25 km,

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on the upper and middle flow of Lapus River, between the village Razoare and the village Remecioara.

The Natural Reserve "Lapus Gorge" is in the administration of town halls, the city of Targu Lapus, commune Vima Mica, Boiu Mare, the city of Somcuta Mare, communes Remetea Chioarului and Coas under the provisions of Government Emergency Ordinance no. 236 / 2000 regarding the system of natural protected areas, the preservation of natural habitats, flora and fauna.

The purpose of establishing the reserve is the preservation of natural habitats, wild flora and fauna, biodiversity. In this reserve is an epigenetic gorge considered unique in Romania because of its size and rocks in which is developed (crystalline shales with levels of metamorphosed limestone and dolomite). Includes sectors like canyon (Vima Mica - Salnita, Buteasa River) and has rocky slopes walls and rocky spurs, waterfalls and caves.

One side and the other of the valley is vast deciduous forests dominated by *Carpinus betulus*, with *Fagus silvatica* and *Quercus cerris*.

Natural Monument "Babei Keys" is a geological fossil and scientific formation with value and a landscape. Babei Keys are located in the township Coroieni, Baba village with an area of 15 ha and a length of 1 km at an average altitude of 250 m, close to the road connecting the city of Targu Lapus with the commune of Galgau (Salaj County). The main purpose of Babei Keys natural area is the preservation of biological diversity.

As regards plant communities in the Lapus County were identified 34 plant associations cenotaxonomic assigned to 11 classes of vegetation, 15 the order and 24 alliances.

For species identification and infrataxons plant I used Romanian Flora and Flora Europaea and other similar works appeared under the print in Romania. The inventoried plant species have been classified according with current phylogenetic system.

The floristical list summarizes all taxon plant identified until now, belonging to cormofites. I have grouped them according to species, subspecies, variety, shape, subshape and hybrids. According to older bibliographic data earlier but to the recent movements on the ground Lapus County flora includes 746 vascular taxons (623 species and 123 subspecies), representing 19.65% of all species and subspecies (3795 taxons) known in Romania's spontaneous flora (Ciocârlan, 2000).

In a critical situation are vegetal rare and endangered taxons from natural areas which because of the uncontrolled actions of grazing and deforestation, have suffered in recently years an intense process that allowed the installation of amfitolerant species with a great competitive ability, compared with typical species of these habitates.

From the category of taxons threatened with extinction belong a number of rare species and subspecies with small populations and require immediate protection:

Delphinium simonkaianum Pawl.: rare, the forests, rocky places, soil limy. Babei Keys, perennial species, mezoxer. Endemite.

Fig. 1 Delphinium simonkaianum

Ranunculus millefoliatus Vahl.: rare, through wet meadows. Peteritea, Coroieni, perennial species, central european-mediterranean. Is a species Critically Endangered (CR).

Ranunculus carpaticus Herbich.: in mountain forests, subalpine forests and edge and glades. Tibles Mountains, perennial species., eutr., mezohigr. Carpathian Endemite.

Papaver alpinum Borza, *ssp. corona - sancti - stephani* Zapal.: rare, detritus, limestone, rocky places, in the subalpin region. Tibles Mountains, perennial species, Carpathian Endemite.

Dianthus tenuifolius Schur.: rocky, grassy meadows on soils disorders on mountain area. Tibles Mountains, perennial species, Carpathian Endemite.

Fig.2 Dianthus tenuifolius

Studia Universitatis "Vasile Goldiş", Seria Ştiinţele Vieţii
Vol. 21, issue 3, Jul.-Sep. 2011, pp. 659-664

Dianthus glacialis Haenke, *ssp. gelidus* Nyman: sporadic, subalpine meadows glades. Tibles Mountains, perennial species, hekistoterm, Carpathian Endemite.

Fig. 3 Dianthus glacialis

Rumex thyrsiflorus L: meadow valleys, forest glades, wetlands and jilave. Lapus Keys, Babei Keys, Libotin, Stoiceni, Borcut, Lapus River, perennial species, euritr., mez. - mezohigr. Is a critically endangered species (CR).

Saxifraga carpathica Stemb: rare and humid rocky places in subalpin area. Tibles Mountains, perennial species, Balcanic Carpathian.

Rubus tereticaulis P. J. Mueller: rare, the forests of spruce. Baiut, Atlantic, Central European.

Fig. 4 Rubus tereticaulis

Potentilla pusilla Host.: very rare, meadows, limestone. Peteritea, perennial species, Central European.

Rosa stylosa Desv.: rare, scrubbery, Lapus Keys. Sp. xeromez., Atlantic.

Medicago polymorpha L.: rare, in meadows and ruderale. Babei Keys. Anual species, mezotr., xeromez., term-subterm., Mediterranean.

Lotus pedunculatus Cav.: rare, in wet meadows and shaded and humid places. Babei Keys. perennial species, mezotr.- eutr., mezohigr.- higr., Subatl.- submedit. Is an endangered species (EN).

Fig. 5 Lotus pedunculatus

Alyssum wierzbickii Baumg. *ssp. transsilvanicum* (Schur.) Nyman: on the rocks, ribs, rocky mountain, scrubbery and subalpin in the floor, sporadic in Lapus Keys. perennial species, Carp. - balc. Critically endangered species (CR).

Aethionema saxatile (L.) R. Br.: rare, on steep limestone cliffs, Tibles Mountains, perennial species, sax., Central European - Mediterranean. Critically endangered species (CR).

Dentaria glandulosa Waldst. et Kit.: in shadow forests, on land-rich humus of mountain floor until the subalpin. Țibles Mountains, perennial species, mezotr, scia, mez.- mezohigr. Carpathian Endemit.

Salix daphnoides Vill.: sporadic willow, on the edge of the rivers Peteritea, Euras. Critically endangered Species (CR).

Linaria alpina (L.) Miller.: rare, on rocks and detritus, on limestone soils. Valea Mare, Tibles Mountains. perennial species, Alp. eur. European Endemit. Vulnerable species (VU).

Fig. 6 *Linaria alpine*

Veronica catenata Pennell, Rhodora: sporadic, in rare places full of water in Romania, liable to inundation, water edge, wet meadows. Lapus Keys, Peteritea, Borcut, perennial species, higr. Circ. Species with low risk of extinction (LR).

Melampyrum saxosum Baumg: sporadic, in subalpine forests and meadows, rocks with grass. Tibles Mountains, Arcer, Hudin, Lapus Mountains. Anual species, Carpathian Endemit.

Campanula carpatica Jacq.: on steep slopes, rocks, detritus, gritty, on gulches, in the mountain floor until the subalpin area. Grosii Tiblesului Valley from its source, perennial species, mez., sax., calc. Carpathian Endemit.

Campanula alpina Jacq. *var. ciblesii* Prod.: through pastures and meadows, places with rocks in the subalpin area. Tibles Mountains, Arcer. Perennial species, mez., oligotr., hekistoterm., Alp. - carp. Endemit.

Fig. 7 Campanula alpina Var. ciblesii

Phyteuma tetramerum Schur. in Verh.: sporadic, through forests, clearings, meadows, rocks from mountain and subalpine region. Peteritea, Tibles Mountains, Lapus Keys, perennial species, Carpathian Endemit.

Phyteuma spicatum L.: rare, in woods, scrubberies, in mountain area. The Valley of Strambu Baiut, Minghet Mountains, perennial species, mez - mezohigr, Eur.

Fig. 8 *Phyteuma spicatum*

Phyteuma wagneri A. Kerner.: sporadic, subalpine meadows, places with grass, rocks. Tibles Mountains, Arcer, perennial species, Carpathian Endemit.

Achillea schurii Schultz. Bip.: on rock places and with grass, in addition to the streams in the subalpine area. Tibles Mountains and Arcer, perennial species, Carpathian Endemit.

Senecio carniolicus Willd.: rare, in meadows, and grows on rocky slopes from subalpine area. Tibles Mountain, Arcer, perennial species, oligotr., mez., Alp. - carp.

Carduus lobulatiformis var. rodnensis Csürös & Nyár: sporadic through meadows, on abrupt versants, on rocks with grass, in subalpine area. Tibles Mountains, Hudin, perennial species, Carp.- balc. Species with low risk of extinction (LR).

Centaurea trinervia Stephan.: sporadic in meadows and the edge of the forests. Babei Keys, perennial species, xeromez., Pont. Species critically endangered (CR).

Festuca filiformis Pourr: meadows in the area of hills and mountains, Lapus Keys, perennial species, xeromez., moderate acid. Species threatened by extinction (EN).

Juncus minutulus Albert & Jahand: in wet places, roads, on the edge of the roads, on wet meadows. Suciu de Sus, annual species, mezohigr. Species critically endangered (CR).

Poa stiriaca Fritsch & Hayek: meadows, forests, edges and cuts of forests, ruderale places, Lapus Keys, Preluca, Peteritea, perennial species, mez. - mezohigr., mezotr. - eutr., Circ. Species with low risk of extinction (LR).

Glyceria declinata (L.) R. Br.: boggy places near places. Township in Lapus Keys, Tibles Mountains, perennial species, higr., Euras. Species threatened by extinction (EN).

CONCLUSION

Field research conducted to investigate the flora and vegetation of the Lapus County led to the following results:

Identification of 47 new species, was not mentioned in the speciality literature for the studied field: *Delphinium simonkaianum, Ranunculus millefoliatus, Gypsophila muralis, Silene heuffelli, Lychnis viscaria, Rumex kerneri, Rumex pulcher, Rubus tereticaulis, Rubus bifrons, Potentilla pussilla, Geum alepicum, Rosa stylosa, Genista tinctoria, Medicago polymorpha, Melilotus altissimus, Trifolium spadiceum, Lotus pedunculatus, Vicia angustifolia, Trinia glauca, Hypericum humifusum, Tamarix ramosissima, Rorippa prolifera, Salix daphnoides, Thymus serpyllum, Digitalis lanata, Rhinanthus borbassi, Melampyrum nemorosum, Campanula transsilvanica, Campanula rapunculoides, Campanula trachelium, Galinsoga ciliata, Achillea crithmifoglia, Centaurea pannonica, Centaurea trinervia, Centaurea mollis, Leontodon crispus, Lactuca*

Studia Universitatis "Vasile Goldiş", Seria Ştiinţele Vieţii
Vol. 21, issue 3, Jul.-Sep. 2011, pp. 659-664

perenis, Hieracium rohacsense, Hieracium laevigatum, Narcisus poeticus, Orchis mascula, Orchis laxiflora, Orchis purpurea, Dactylorhiza incarnata, Eleocharis ovata, Festuca heteromalla, Lolium multiflorum.

Identifying of 33 rare species as being present in the region of study, of which: 13 are endemic species and 20 species are rare or very rare.

Of this 33 rare species, 7 species were identified in the field: *Delphinium simonkaianum*, *Ranunculus millefoliatus*, *Rubus tereticaulis*, *Potentilla pussilla*, *Rosa stylosa*, *Medicago polymorpha*, *Lotus pedunculatus* and 25 species were those mentioned in the speciality literature: *Ranunculus carpaticus, Papaver alpinum ssp. corona – sancti – stephani*, *Dianthus tenuifolius, Dianthus glacialis Ssp. gelidus, Rumex thyrsiflorus, Saxifraga carpathica, Alyssum wierzbickii ssp. transsilvanicum, Aethionema saxatile, Dentaria glandulosa, Salix daphnoides*, *Linaria alpina*, *Veronica catenata*, *Melampyrum saxosum*, *Campanula carpatica*, *Campanula alpina var. ciblesii, Phyteuma tetramerum*, *Phyteuma spicatum, Phyteuma wagneri*, *Achillea schurii*, *Senecio carniolicus*, *Carduus lobulatiformis var. rodnensis, Centaurea trinervia*, *Festuca filiformis*, *Juncus minutulus*, *Poa stiriaca*, *Glyceria declinata*.

From the total number of taxons inventoried so far in the study area (746 taxons), rare and endangered plants represent 4,42%.

All species and subspecies identify in Lapus County	Species and subspecies endangered	Sozological categories							
		CR	EN	VU	LR	EX	EW	DD	NE
746	14	7	3	1	3	0	0	0	0
100%	1,88%	50,00	21,42	7,14	21,42	0	0	0	0

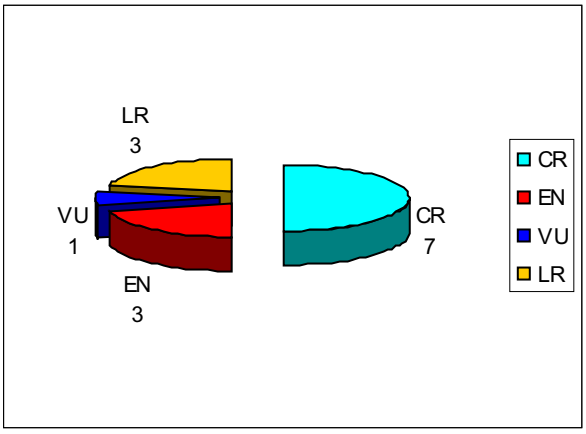

Fig. 9 Sozological categories

Reported to the number of Romanian flora taxons - 3795 (Ciocarlan, 2000), floristic rarities represent 0,87%. In terms of their membership to the IUCN sozological categories set of rare plant has gone step (Dihoru et al., 2009), the situation is as follows: 7 species are critically endangered (CR), 3 species are endangered (EN), 1 species is vulnerable (VU) and 3 species are at lower risk of extinction (LR) (Dihoru, 2009). Sozological categories: extinct (EX), extinct in the wild (EW), data deficient (DD) şi not evaluated (NE) I didn't identify vegetal species.

The necessary strategic priorities in the area of sustainable development shall cover the following aspects: the legislative framework in particular situations encountered in Lapus Country; integration with the conservation of biodiversity in the process of socio-economic development of local communities, taking into account the traditions and the cultural and spiritual features thereof; the conservation of natural and semi-natural habitats in the area; the appropriate management of protected areas, but also other areas with significant accumulations of biodiversity, with substantial local populations of rare and endangered species, lesser known by public opinion, potential special areas of conservation; the development of regional red lists of plant and animal species that are rare and endangered in the area; restoring habitats (where possible) affected by man-made impact, particularly in the "Babei Keys" and their great with rare species, as a result of anthropogenic activities development; reducing the effects of anthropogenic impact in areas of interest, other than conservatives protected areas; the results of the promotion and popularization of activities within the framework of research projects which have the main aims of protection and conservation of biodiversity; the promotion of tourism, traditional, natural reservations, whilst reducing the impact of mass tourism on these sensitive areas; the intensification of activities relating to information, education and awareness of the general public but also local authorities on the importance of sustainable development in the context of the safeguarding and protection of biodiversity in General and of biodiversity in the area of the Lapus Country, in particular.

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