

FOREST HABITATS FROM VALEA VÂLSANULUI RESERVE

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Abstract. The paper presents four forest habitats from Valea Vâlsanului Reserve: R4109 Southeast Carpathian beech forests (*Fagus sylvatica*) with *Symphytum cordatum*; R 4206 Southeast Carpathians spruce forests (*Picea abies*) and fir (*Abies alba*) with *Hieracium rotundatum*; R 4401 Southeast Carpathians white alder forests (*Alnus incana*) with *Telekia speciosa*; R 4402 Geto – Dacian forests of hilly meadows of alder (*Alnus glutinosa*) with *Stellaria nemorum*. These habitats were characterized by the following elements: distribution in territory, structure, floristic composition, conservation status, potential threats.

Keywords: forest habitats, floristic composition, conservation status, Valea Vâlsanului Reserve.

Rezumat. Habitate forestiere din Rezervația Valea Vâlsanului. Lucrarea prezintă patru habitate forestiere din Rezervația Valea Vâlsanului. Acestea sunt: R4109 Păduri sud est carpatice de fag (*Fagus sylvatica*) cu *Symphytum cordatum*; R 4206 Păduri sud est carpatice de molid (*Picea abies*) și brad (*Abies alba*) cu *Hieracium rotundatum*; R 4401 Păduri sud est carpatice de anin alb (*Alnus incana*) cu *Telekia speciosa*; R 4402 Păduri daco-Getice de lunci colinare de anin negru (*Alnus glutinosa*) cu *Stellaria nemorum*. Habitatele au fost caracterizate din punct de vedere al distribuției în teritoriu, structură, compoziție floristică, statutul de conservare, potențiale amenințări.

Cuvinte cheie: habitate forestiere, compoziție floristică, statutul de conservare, Rezervația Valea Vâlsanului.

INTRODUCTION

The protected natural area of a Community importance "Valea Vâlsanului" has a wide geographic exposure on the north - south in Argeș county, including areas in the Southern Carpathians (Făgăraș), Getic Plateau and Getic Subcarpathians. The reserve includes the Vâlsan River basin upstream of the village Brădet, point Bariera, and the lower riverbed of the Vâlsan River down to its confluence with the Argeș River. Site details: Latitude N 45°15'4"; Longitude E: 24°45'33"; Site area (ha): 9.602; Altitude (m): Min. 300, Max. 2310, Med. 1350; Biogeographical region: alpine and continental.

The importance of the protected area is due to the presence of a tertiary endemite, the Romanian darter (*Romanichthys valsanicola*), within its territory.

Beside this species of fish, in the protected natural area Vâlsan Valley, there are also present other rare and protected species of plants and animals and outstanding natural areas and special landscapes. All these underscore the need for an effective protection of the biodiversity of this region, demonstrating the great scientific importance of the protected area "Valea Vâlsanului" (SANDA et al., 1995).

The research of flora and vegetation are relatively reduced in this protected area.

Habitats are diverse, the most representative being: heaths and scrubs temperate, subalpine and alpine meadows, wet meadows and tall herb communities, temperate deciduous forests, temperate coniferous forests, scrub forests and meadows, bogs, springs and streams (COMBROUX & SCHWOERER, 2007).

This paper presents a description of the most important forest habitats in the studied area.

MATERIAL AND METHOD

In the summer of 2014, there were conducted phytosociological surveys for each forest habitat, corresponding to the classification systems used in Europe, consisting of indications of names and codes for each type of habitats from the classifications which were taken into consideration (NATURA 2000, EMERALD, CORINE, PALEARCTIC HABITATS, EUNIS) from the Romanian classification system (CRISTEA V. et al., 2004).

RESULTS AND DISCUSSION

After the research there were identified 4 forest habitats: R4109 Southeast Carpathian beech forests (*Fagus sylvatica*) with *Symphytum cordatum*; R 4206 Southeast Carpathian spruce forests (*Picea abies*) and fir (*Picea abies*) with *Hieracium rotundatum*; R 4401 Southeast Carpathian forests of grey alder (*Alnus incana*) with *Telekia speciosa*; R 4402 Geto-Dacian forests of hilly meadows of black alder (*Alnus glutinosa*) with *Stellaria nemorum* (COLDEA, 1991) (Fig. 1).

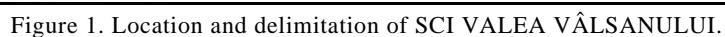
R 4109 Southeast Carpathian beech forests (*Fagus sylvatica*) with *Symphytum cordatum*

Correspondent:

NATURA 2000: 91V0 Dacian beech forests (*Symphyto-Fagion*)

EMERALD: 41.1 Beech forests

CORINE: –



Distribution within the territory: this habitat was identified along the Vâlsan River, upstream of Brădet, fits in the lower mountain level. Downstream Vâlsan Lake, beech becomes dominant. The phytocoenosis of this association develops on the flat or slightly inclined slopes of the Valsan Valley, preferring brown, wet forest soils (DONIȚĂ et al., 1992).

Structure: trees layer consists of beech 90%. The remaining 10% consists in elm (*Ulmus glabra*), sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*) and rarely spruce (*Picea abies*) and fir (*Abies alba*). Shrub layer is encountered in rare specimens of *Sambucus nigra*, *Corylus avellana*, *Lonicera xylosteum*. Herbs and under shrubs layer has the following characteristic species: *Symphytum cordatum*, *Pulmonaria rubra*, *Dentaria glandulosa*, *Mercurialis perennis*, *Epilobium montanum*, *Oxalis acetosella*, *Carex sylvatica*.

Floristic composition: edifying species: *Fagus sylvatica* ssp. *sylvatica*. Characteristic species: *Symphytum cordatum*, *Pulmonaria rubra*, *Dentaria glandulosa*. Other important species: *Epilobium montanum*, *Dryopteris filix-mas*, *Galium odoratum*, *Lamium galeobdolon*, *Geranium robertianum*, *Mercurialis perennis*, *Mycelis muralis*, *Oxalis acetosella*, *Dentaria bulbifera*, *Euphorbia amygdaloides*, *Anemone nemorosa*.

Potential threats are related to property regime, the lack of understanding of the legislation of nature protection, misapplication by the state of the compensation for the limitation or suppression of protective measures in the protected areas. Cutting, extraction of alive or dead wood from private forest is a dangerous issue for the present and also for the future. Arboretum composition from the high altitudes will change, even if exploitation will be made according to ecological shares. It will be necessary to introduce softwood seedlings.



Figure 2. Beech forest in Valea Vâlsanului Reserve (original).

This habitat has a great conservative value.

R 4206 Southeastern Carpathians Spruce forests (*Picea abies*) and fir (*Abies alba*) with *Hieracium rotundatum*.

Correspondent:

NATURA 2000: 9410 acidophilous *Picea* forests of the montane to alpine levels (*Vaccinio – Piceetea*)

EMERALD: -

CORINE: -

PAL. HAB: 42.21621 Carpathian high montane *Hieracium* spruce forest

EUNIS: G3.1B1 Bilberry spruce forest

Plant associations: *Hieracio rotundato – Piceetum* Pawl et Br.- Bl. 1939

Distribution within the territory: this habitat is present in Valea Vâlsanului Reserve at the superior limit of the forest. It has a medium extension and is found in all the mountains of the reserve. Coenoses are developed on podzolic soils and slopes with 25-30° inclination (DONIȚĂ et al., 2005) (Fig. 2).

Structure: tree layer is composed exclusively of spruce (*Picea abies*), which is the dominant species. At lower altitudes, there are also met some fir specimens (*Abies alba*). In the herbaceous layer, besides the characteristic species *Hieracium transsilvanicum*, there are found many acidophilous species such as *Luzula sylvatica*, *Luzula luzuloides*, *Calamagrostis villosa*, *Calamagrostis arundinacea*, *Campanula patula* ssp. *abietina*, *Athyrium filix-femina*, *Fragaria*

vesca, *Homogyne alpina*, *Lycopodium annotinum*, *Oxalis acetosella*, *Stellaria nemorum*, *Vaccinium myrthillus*. In the muscinal layer, there are found species as: *Hylocomium splendens*, *Dicranum scoparium*, *Politrichum* sp.

Floristic composition: edifying species: *Picea abies* și *Abies alba*. Characteristic species: *Hieracium rotundatum*. Other important species: *Senecio nemorensis*, *Campanula abietina*, *Calamagrostis villosa*, *Luzula luzuloides*, *Luzula sylvatica*, *Oxalis acetosella*, *Stellaria nemorum*, *Lycopodium annotinum*, *Gentiana asclepiadea*, *Huperzia sellago*, *Dryopteris filix-mas*, *Fragaria vesca*, *Polygonatum verticillatum*.



Figure 3. Spruce forest in Valea Vâlsanului reserve (original).

This habitat has a moderate conservative value.

R 4401 Southeaster Carpathians white alder forests *Alnus incana* with *Telekia speciosa*

Correspondent:

NATURA 2000: 91E0* Alluvial forest with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)

EMERALD: -

CORINE: -

PAL: HAB: 44.214 Eastern Carpathian grey alder galleries

Plant associations: *Telekia speciosa* – *Alnetum incanae* Coldea (1986) 1991

Distribution within the territory: this habitat is developed and is well represented along the Vâlsan River, 600 – 850 m altitude. White alder has strong regeneration, dominating Vâlsan warbler (Vâlsan riverside coppice), having the tendency to spread toward the riverbed. In the upper mountain zone, alder trees are rare, but their role is partially substituted by juniper and spruce (Fig. 3). Because of the tourists' bad behaviour, in Poienile Vâlsanului, the alders are rather rare. The original forest was cut and in its place secondary grasslands were installed.

Structure: the tree layer is dominated by *Alnus incana* (Fig. 4), slightly mixed with beech (*Fagus sylvatica*), *Picea abies*, and at a lower altitude *Alnus glutinosa*. The coverage of arborescent layer is 80-90%. Shrub layer misses or is underrepresented by *Corylus avellana*, *Prunus padus*, *Salix triandra*. The herbaceous layer is well developed, dominated by *Telekia speciosa* and *Petasites albus* accompanied by other species such as: *Impatiens noli-tangere*, *Tussilago farfara*, *Stellaria nemorum*, *Equisetum arvense*, *Aegopodium podagraria*.

Floristic composition: edifying species: *Alnus incana*. Characteristic species: *Telekia speciosa*. Other important species: *Geranium phaeum*, *Cirsium oleraceum*, *Impatiens noli-tangere*, *Myosotis sylavatica*, *Oxalis acetosella*,

Angelica sylvestris, *Athyrium filix-femina*, *Petasites hybridus*, *Stellaria nemorum*, *Tussilago farfara*, *Dryopteris filix-mas*, *Festuca gigantea*, *Carex remota*, *Petasites kablikianus*, *Glechoma hederacea* (GAFTA & MOUNTFORD, 2008).

The high humidity of these habitats has allowed the growth of elements typical to *Molinio-Arrhenatheretea* class such as: *Equisetum arvense*, *Dactylis glomerata*, *Caltha palustris*, *Leucanthemum vulgare*, *Prunella vulgaris*, *Trifolium repens*, *Agrostis stolonifera*.

The ruderal species are widely spreading along the Vâlsan River: *Angelica sylvestris* ssp. *montana*, *Petasites kablikianus*, *P. hybridus*, *Lamium maculatum*, *Heracleum sphondylium*, *Glechoma hederacea*, *Urtica dioica*.

The potential threats in the future could be: illegal tree cutting, touristic actions (camping & the consequent waste, bush cutting, car washing in the river), sheep or cows grazing inside the forest.



Figure 4. Alluvial forest with *Alnus incana* and *Telekia speciosa* along the Vâlsan River (original).

This habitat has a very high conservative value.

R 4402 Hilly meadows Geto – Dacian alder (*Alnus glutinosa*) with *Stellaria nemorum*.

Correspondent:

NATURA 2000: 91E0* Alluvial forest with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)

EMERALD: -

CORINE: -

PAL. HAB: 44.323 Pre – Carpathian stream ash – alder woods

EUNIS: G1. 2123 Pre – Carpathian stream ash – alder woods

Plant associations: *Stellario nemori* – *Alnetum glutinosae* (Kästner 1938) Lohm. 1957

Distribution within the territory: this habitat develops along the Vâlsan River, 300 – 600 m altitude.

Structure: the tree layer is dominated by *Alnus glutinosa* with a few specimens of *Fraxinus angustifolia*, *Acer campestre*, *Salix alba*, *S. fragilis*. Shrub layer is composed by *Sambucus nigra*, *Corylus avellana*, *Crataegus monogyna*.

Floristic structure: edifying species: *Alnus glutinosa*. Characteristic species: *Stellaria nemorum*, *Ficaria verna*. Other important species: *Geranium robertianum*, *Impatiens noli-tangere*, *Galium aparine*, *Lamium galeobdolon*, *Mentha longifolia*, *Petasites albus*, *Ranunculus repens*, *Salvia glutinosa*, *Sambucus ebulus*, *Solanum dulcamara*, *Tussilago farfara*, *Myosotis palustris*, *Brachypodium sylvaticum*.

This habitat has a very high conservative value.

CONCLUSIONS

The phytosociological research performed in the summer of 2014 in Valea Vâlsanului Reserve showed a good conservation status of the forest habitats in the studied area. There are important coenotic structures from the phytogeographical point of view, where we meet Endemic, Carpathian and Balkan-Carpathian elements such as:

Campanula patula ssp. *abietina*, *Pulmonaria rubra*, *carduus kernerii*, *Petasites kablikianus*, *Hieracium transsilvanicum*, *Leucanthemum waldsteinii*.

Because of the frequent human intervention, these habitats should be regularly monitored, recording both floristic composition and structure stability of ecosystems. Human interventions are, for example, changes in the extent and types of agricultural and forest land, modifications of water courses from dams, the fragmentation of the habitats and natural areas as a consequence of the transport system, or direct extermination. Such types of changes where they have detrimental effects on habitats or species of Community interest are in contradiction with the aims of the directive to maintain a favourable conservation status or restore habitats and species of Community interest.

But, there are also natural reasons, which include changing climatic conditions, the successions of habitats or the exploitation of a new food resource by animal species. Some of these reasons may be considered as natural responses to environmental conditions or natural variation in the characteristics of species, over which we have no influence.

It is necessary to realize and respect the management plan for preserving the area of the habitats in its current form.

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