FORESTS WITH CONSERVATION VALUE FROM PĂDUREA CRAIULUI MOUNTAINS, BEIUŞ FORESTS DISTRICT, MANAGMENT UNIT III SOHODOL

Burescu Laviniu Ioan-Nuţu*

*University of Oradea, Faculty of Environmental Protection, 26 Gen. Magheru St., 410048 Oradea, Romania, e-mail: laviniuburescu@gmail.com

Abstract

We conducted our research in Pădurea Craiului Mountains, Beiuş Forest District, Management Unit III Sohodol, comprising an area of 2990 ha afforested land aimed at setting high conservation values (HCVs) and the forest they contain (HCVF).

Following the selection from the forest compartments of thpse compartments which may contain conservation values, the research and the scrutiny of the scientific material, in the discussion and findings related chapters there are presented high conservation values in the following compartments Ua8A, Ua11A, Ua12A, Ua38, and Ua40 where we found and described phytocenoses from the forests containing species of rare, vulnerable and endangered plants, animals and ecosystems.

Keywords: High conservation value, forests, biodiversity.

INTRODUCTION

STATE OF KNOWLEDGE

Research on high conservation value forests have been reported in other geographic regions of Romania, in the works of the following authors:: Abrudan et al. (2006, 2009), Biriş (2001, 2004), Biriş et al. (2002, 2005), Cenuşă (2001), Doniţă (2001), Doniţă et Biriş (2001), Giurgiu (2001), Ioraş et Abrudan (2007), Jennings et al. (2003), Nicolescu (2000), Radu et al. (2004), Stăncioiu (2008), Stăncioiu et al. (2008, 2010), Vlad et al. (2010).

No research on high conservation value forests in the Pădurea Craiului Mountains, was conducted until the first research made by us, Burescu (2009, 2010, 2013).

WORKING METHOD AND RESEARCH LOCATION

After consulting the "Ghidul practic pentru identificarea pădurilor cu valoare ridicată de conservare" (*Practical guide to identify high conservation value forest*) developed by Stanciu E., Mihul M., Dinicu G., (2004) as WWW collaborators, we identified and delineate high conservation value forest categories.

In order to ensure accurate identification and delineation of forest containing such values descriptions were made in the field on the composition of their flora and fauna.

The research was carried out in Beiuş Forest District, Management unit III Sohodol, the compartments 6A, 8A, 11A, 12A, 38, 40 containing 5% HCVF protected area totalling 185 ha out of the total 2990ha and the compartments 2E, 17B, 17C, 31A, 32A, 79B, 87A, 87D, 87e, 88B, 90A, 90C containing 5% HCVF conservation area totalling 18.6 ha out of the total of 2990ha.

MATERIAL AND METHOD

RESEARCH FINDINGS

In research we conducted in the stands of Beiuş Forest District, Management unit III Sohodol UP we aimed at identifying those forests encompassing rare, relict, endemic, vulnerable, threatened, endangered species of plants, animals, and regional specific ecosystems included in the national guide.

In terms of rare, threatened, endangered, ecosystems, forest ecosystems complexes, groves of trees on rocks and scree (HCV 3) and critical environmental situations related services (HCV 4) in the forests of Beiuş Forest District, Management unit III Sohodol there were identified HCVF as follows:

1. HCV 1.2, 1.3 Forests that are habitats for endemic, relict, rare, vulnerable and endangered species (beech forests) in the plots 8A, 12A, 38.

2. HCV 3 (B_1) Rare forest ecosystems - ecosystems with gorge specific maple – beech trees and limestone scree (3418) in the plots 6A, 8A, 11A, 12A.

3. HCV 3 (A_3) Ecosystems complexes of beech and beech glades on limestone rocks and scree in complexes with associations of ferns in the plot 40A.

4. HCV 3 (B_1) Rare forest ecosystems rare, ecosystems of beech forests with *Vaccinium* of the hills area (3356) into the compartment 38.

RESULTS AND DISCUSSION

Table 1 below presents data on high conservation value forests in Beiuş Forests District, Management unit (Mu) III Sohodol.

The protected area contains HCVF 3 specific to this region but also having roles of protection of soil in surfaces with rocks and scree and as forests located in karst areas (1.2.k).

In the conservation area there are contained HCVF 3 specific for this region but encompassing protection functions for soil and fauna.

Table 1

Compartments proposed to be established as woods with high preservation value (HCVF) from Beiuş Forest district. Management unit (Mu) III Sohodol (surface Mu III Sohodol = 2990 ha)

Management unit (Mu)	Compartment	Surface Ha	Ecosystem type	Belonging to one of the categories of forests with high conservation value – HCVF (by indicating the area - ha -, and functional zoning)				
				HCVF 1-1	HCVF 1-2,1-3	HCVF 3	HCVF 4-1	HCVF 4-2
HCVF 5%, protected area (Mu III Sohodol)								
III	6A	14.8	3418			14.8 (1-2a. 2k)		14.8
III	8A	54.1	3418		54.1	54.1(1-5i. 2a)	54.1	54.1
III	11A	61.2	3418			61.2 (1-2a)		61.2
III	12A	22.8	3418		22.8	22.8(1-5i. 2a)		22.8
III	38	27.5	3356		27.5	27.5(1-5i. 2a)		27.5
III	40	4.7	4423			4.7(1-5i. 2a)		1.7
Total = 185.1								
HCVF 5%. Conservation area (Mu III Sohodol)								
III	2E	33.8	3374			33.8 (1-2a)		33.8
III	17B	4.3	3126			4.3 (1-2a)		4.3
III	17C	1.3	3126			1.3 (1-2a)		1.3
III	31A	1.1	3374			1.1 (1-2a)		1.1
III	32A	4.4	3374			4.4 (1-2a)		4.4
III	79B	1.6	5136			1.6 (1-2a)		1.6
III	87A	18.1	5136			18.1 (1-2a)		18.1
III	87D	13.8	5136			13.8 (1-2a)		13.8
III	87E	5.1	4116			5.1 (1-2a)		5.1
III	88B	9.8	4634			9.8 (1-2a)		9.8
III	90A	15.6	3126			15.6 (1-2a)		15.6
III	90C	19.7	3126			19.7 (1-2a)		19.7
Total = 128.6 ha								

Description of phytocoenoses in the compartments containing high conservation value forests Beiuș Forest District, Management unit III Sohodol

Descriptions in situations representative for HCVF3 (B1)(HCVF 1.2, HCVF 4.2)

Maple – beech trees (*Fraxinus excelsior, Acer pseudoplatanus*) specific to gorge and limestone scree.

Ecosystem type: 3418 maple + sycamore trees with *Phyllitis – Lunaria*.

Forest type: 0311 mix maple trees (m)

Forrest site type: 4210 Mountain – pre-mountain of beech stands Pi, rendzina soils, medium edaphic type, skeleton-like, 4211 Mountain – pre-mountain of beech stands Pm faeosiom soils and typical under-redzina and eutricambosoils, under-redzina types (typical lime pits) medium edaphic type with *Asperula – Dentaria.*

Habitat: R 4117 East - Carpathian ash forests (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*), elm (*Ulmus glabra*) with *Lunaria rediviva*.

Plant Association: Maple - elm trees Beldie 1951 (*Phyllitidi Aceretum* Moor 1952).

Forest District Beiuş, management unit III Sohodol, compartment 6A

HCVF 3, (HCVF 4.1, HCVF 4.2)(B1)

Forests containing rare natural forest ecosystems, ash grove – sycamore-maple grove (Fraxinus excelsior, Acer pseudoplatanus, Ulmus glabra) specific to gorges and limestone scree. Forest studied functional belongs to functional category 1-2a, forest vegetation with environmental critical services for erosion-control and watershed protection.

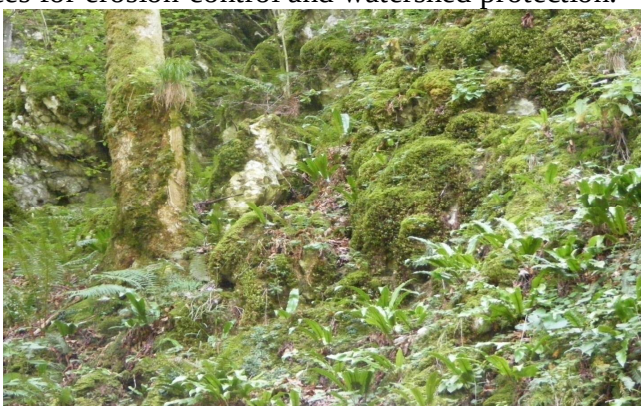

Image 1: Ash grove – sycamore-maple grove with *Phyllitis – Lunaria.* Valea Lazurilor valley, confluence with Strivinosu river, HCVF 3, HCVF 4.2. (original photo).

Compartment 6A, surface 14.8 ha, age 100 years, location: Valea Lazurilor, emissary river of Valea Roșia. Forrest site, altitude 380 – 690m,

South – east slope, slope 38°, shaded narrow gorges with steep limestone cliffs and scree on about 40% of the surface.

Conservation value: very high, containing rare forest ecosystems.

Phytocoenosis description indicating species:

Tree layer, covering 70%:

Fagus sylvatica 3-4, h=20m, d=40-42cm, Carpinus betulus 2, h=16m, d=32-34cm, Prunus avium 1, h=24m, d=35-36cm, Acer campestre 1, h=18m ,d=32cm, Fraxinus excelsior +, h=24m, d=38-40cm, Ulmus glabra + h=18m, d=30cm, Acer platanoides+, h=18m, d=36-38 cm, Tilia tomentosa +, h=14m, d=30cm

Shrub layer, covering 15%:

Corylus avellana 1, Cornus mas 1, Cornus sanguineum +, Sambucus nigra +, Crataegus monogyna +, Euonymus latifolius +, Solanum dulcamara +, Clematis vitalba +

Young tree specimens and seedling, covering 15%:

Fagus sylvatica 1-2, Carpinus betulus +, Fraxinus excelsior + , Prunus avium +, Acer campestre +, Acer pseudoplatanus +, Acer platanoides +, Ulmus glabra +

Herbaceous layer, covering 80%:

Phyllitis scolopendrium 1-2, Lunaria rediviva +-1, Asplenium trichomanes ssp. *quadrivalens +, Polypodium vulgare +, Asarum europaeum +, Hepatica nobilis +, Lathyrus vernus +, Melittis melissophyllum +, Lamium galeobdolon +, Brachypodium sylvaticum +, Sanicula europaea +* (third relict), *Aposeris foetida +, Arum maculatum +, Primula veris* ssp. *columnae +, Lathyrus venetus +, Dryopteris filix-mas +, Galium odoratum +, Festuca drymeja +, Pulmonaria officinalis +, Viola reichenbachiana +, Polistichum aculeatum +, Carex digitata +, Rubus hirtus +, Hedera helix +, Mycelis muralis +, Geranium robertianum +, Cardamine bulbifera +, Arabis hirsuta +, Sedum maximum +, Calamintha sylvatica +, Parietaria officinalis +, Polygonatum latifolium +, Campanula rapunculoides +, Cirsium oleraceum +, Salvia glutinosa +, Circaea lutetiana +, Stachys sylvatica +, Dipsacus laciniatus +, Galeopsis speciosa +, Melampyrum bihariense +* Dacian, *Athyrum filix femina +, Doronicum columnae +, Galium schultesii +, Heracleum sphondilium +,Polygonatum odoratum +,Euphorbia amygdaloides +, Verbena officinalis +,Ceterach officinalis +,Moehringia muscosa +, Campanula persicifolia +, Geum urbanum +, Vincetoxicum hirundinaria +, Impatiens noli – tangere +*

Moss layer, covering 20 %: *Ctenidium moluscum 2-3 on rocks.*

Forest District Beiuş, management unit III Sohodol, compartment 8A

HCVF 3, (HCVF 1.2, HCVF 4.1, HCVF 4.2)(B1) Forests containing rare natural forest ecosystems, ash grove – sycamore-maple grove (*Fraxinus excelsior, Acer pseudoplatanus, Ulmus glabra*) specific to gorges and limestone scree.

Forest studied belongs to functional category 1-2a, forest vegetation with environmental critical services: hydrological, erosion-control, climate; compartment 8A, surface 54ha, age 105 years, location: Valea Lazurilor valley, and Toplicioara Cave intermittent spring.

Forrest site: Eastern slope, slope inclination 45-60°, altitude: 490m, shaded narrow gorges with steep rocks, caves, grottos and mobile and semi-mobile scree .

Image 2: Ash grove – sycamore-maple grove with *Phyllitis – Lunaria*, Valea Lazurilor at Toplicioara Cave intermittent spring, HCVF 3, HCVF 4.2, (original photo).

Very high conservation value, very rare ecosystems forests containing rare species of animals.

Phytocoenosis description indicating species:

Tree layer, covering 60%.

Fagus sylvatica 2, h=18m, d=38-40cm, Carpinus betulus 3, h=18m, d=30cm, Acer pseudoplatanus +, h=18m, d=32cm, Fraxinus excelsior +-1, h=18m, d=26cm, Ulmus glabra +-1, h=19m, d=38cm, Acer campestre +, h=18m, d=36cm, Prunus avium +, h=19m, d=38cm

Shrub layer, covering 5%:

Sambucus nigra +, Cornus mas +, Corylus avellana +-1, Cornus sanguineum +

Herbaceous layer, covering 60%:

Phyllitis scolopendrium 1-2, Polypodium vulgare +-1, Asplenium trichomanes +, Hedera helix 2-3, Parietaria officinalis +-1, Salvia glutinosa +, Lunaria rediviva +-1, Polystichum aculeatum +, Asarum europaeum +, Galium odoratum +, Mercurialis perennis+, Circaea lutetiana +, Urtica dioica +, Rubus idaeus +, Rubus hirtus +, Impatiens noli-tangere +Bromus riparius +, Geranium robertianum +, Campanula persicifolia +, Campanula rapunculoides +, Sedum maximum +, Cirsium oleraceum +, Hepatica nobilis +, Lamium galeobdolon +, Mycelis muralis +, Pulmonaria officinalis +, Senecio germanicus +, Veronica urticifolia +, Chelidonium majus +, Aegopodium podagraria +, Primula veris ssp. *columnae +, Heracleum sphondilium +, Symphytum tuberosum +, Stachys sylvatica +, Melica uniflora +, Athyrium filix-femina +, Festuca drymeja +-1, Heleborus purpurascens +, Lathyrus vernus +, Melittis melissophyllum +, Hieracium umbellatum +, Brachypodium sylvaticum +, Cephalanthera rubra +* rare, *Lathyrus venetus +, Galium schultesii +.*

This forest fauna includes many rare, endangered, vulnerable species as follows: *Salamandra salamandra* (The fire salamander), *Ichthyosaura alpestris* (The alpine newt) *Zamenis longissimus* (Aesculapian snake), *Natrix tessellata* (The dice snake), *Acvila chrysaetos* (The golden eagle), *Milvus milvus* (The red kite), *Bubo bubo* (The Eurasian eagle-owl), *Streptopelia turtur* (The European turtle dove), *Upupa epops* (The common hoopoe), *Lullula arborea* (The woodlark), *Phoenicurus ochruros* (The black redstart), *Picus viridis* (The European green

woodpecker), *Picus canus* (The grey-headed woodpecker), *Dryocopus martius* (The black woodpecker), *Emberzia cia* (Rock Bunting), *Ficedula parva* (The red-breasted flycatcher), *Strix uralensis* (The Ural owl), *Nyctalus leisleri* (The lesser noctule), *Martes martes* (The European pine marten), *Ursus arctos* (The brown bear), *Cervus elaphus* (The red deer), *Capreolus capreolus* (The European roe deer).

Forest District Beiuş, management unit III Sohodol, compartment 11A

HCVF 3, (HCVF 4.1, HCVF 4.2)(B1) Forests containing rare natural forest ecosystems, ash grove – sycamore-maple grove (*Fraxinus excelsior, Acer pseudoplatanus, Ulmus glabra*) specific to gorges and limestone scree, compartment 11A, surface 61.2ha, age 100 years, location: Valea Toplicioarei valley, under the Dealu Gruiului hill. Forrest site: shaded narrow gorges with massive rocky surface and mobile and semi-mobile scree, altitude: 370 - 380m, North west slope, slope inclination 38 - 40°.

Forest studied belongs to functional category 1-2a, forest vegetation with environmental critical services: hydrological, erosion-control, climate; compartment 8A, surface 54ha, age 105 years, location: Valea Lazurilor valley, and Toplicioara Cave intermittent spring.

Very high conservation value, containing rare forest ecosystems.

Phytocoenosis description indicating species:

Tree layer, covering 70%:

Fagus sylvatica 4, h=19m, d=52cm, Carpinus betulus +, h=18m, d=30cm, Fraxinus excelsior +, h=24m, d=30cm, Acer pseudoplatanus +, h=20m, d=44cm, Ulmus glabra +, h=19m, d=40cm, Prunus avium +, h=24m, d=42cm

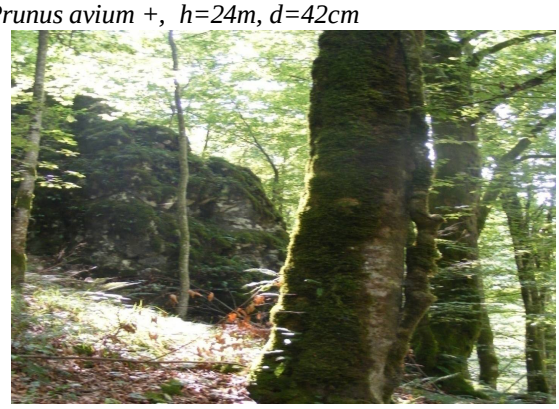

Image 3: Ash grove – sycamore-maple grove with *Phyllitis – Lunaria*, Valea Lazurilor under Gruiu mountain peak, HCVF3, HCVF 4.2, (original photo).

Young tree specimens and seedling, covering 5%:

Fagus sylvatica +-1, Carpinus betulus +, Acer pseudoplatanus +, Ulmus glabra +, Fraxinus excelsior +, Prunus avium +

Shrub layer, covering 5%:

Sambucus nigra +-1, Corylus avellana +, Euonymus latifolium +, Daphne mezereum +, Solanum dulcamara +, Clematis vitalba +

Dead tree, fallen wood, covering 5-8%:

Fagus sylvatica, Fraxinus excelsior, Prunus avium

Herbaceous layer, covering 50%:

Phyllitis scolopendrium 1-2, Lunaria rediviva +, Hepatica nobilis +, Asarum europaeum +, Lamium galeobdolon +, Galeopsis speciosa +, Polystichum aculeatum +, Mycelis muralis +, Campanula rapunculoides +, Campanula persicifolia +, Polypodium vulgare +, Asplenium trichomanes +, Salvia glutinosa +, Saxifraga cuneifolia +, Cystopteris fragilis +, Moehringia muscosa +, Brachypodium sylvaticum +, Lathyrus vernus +, Galium schultesii +, Oxalis acetosella +, Dentaria bulbifera +, Pulmonaria officinalis +, Mercurialis perennis +, Athyrium filix – femina +, Festuca drymeja +, Rubus hirtus +, Veronica urticifolia +, Primula veris ssp. *columnae, Carex digitata +, Cirsium oleraceum +, Melittis melissophyllum +*. Moss layer, covering 8-10%:

Ctenidium moluscum 3-4 on the rocks, Hypnum repandum +-1 on the rocks

Forest District Beiuş, management unit III Sohodol, compartment 12A

HCVF 3, (HCVF 4.1, HCVF 4.2)(B1). Forests containing rare natural forest ecosystems, ash grove – sycamore-maple grove (*Fraxinus excelsior, Acer pseudoplatanus, Ulmus glabra*) specific to gorges and limestone scree.

Forest studied belongs to functional category 1-2a, forest vegetation with environmental critical services: hydrological, erosion-control; compartment 12A, surface 22.8ha, age 100 years, location: Valea Lazurilor valley on the Soimusul peak, under Gruiu mountain peak, forest site altitude: 370 – 580m, South slope, slope inclination 40° narrow gorges with limestone rocks mobile and semi-mobile scree on a surface of 40%.

High conservation value, containing rare forest ecosystems with rare fauna species.

Phytocoenosis description indicating species:

Tree layer, covering 60%:

Fagus sylvatica 3, h=20m, d=40cm, Carpinus betulus 2, h=20m, d=32cm, Acer pseudoplatanus +, h=20m, d=32cm, Fraxinus excelsior +, h=19m, d=36cm,Ulmus glabra +, h=22m, d=44cm, Acer campestre +, h=20m, d=32cm, Acer platanoides +, h=18m,d=34cm, Tilia tomentosa +, h=20m, d=34cm.

Shrub layer, covering 5%:

Corylus avellana +-1, Cornus mas +, Sambucus nigra +

Young tree specimens and seedling, covering 5%:

Fagus sylvatica +-1, Acer pseudoplatanus +, Ulmus glabra +, Fraxinus excelsior +, Carpinus betulus +.

Herbaceous layer, covering 50%:

Phyllitis scolopendrium +-1, Lunaria rediviva +-1, Galium odoratum +-1, Hedera helix +-1, Mercurialis perennis +, Polypodium vulgare +, Asplenium trichomanes+, Lamium galeobdolon +-1, Moehringia muscosa +, Euphorbia amygdaloides +, Rubus hirtus +-1, Pulmonaria officinalis +, Primula veris ssp. *columnae +, Polystichum aculeatum +, Silene dioica+, Lathyrus vernus+, Salvia glutinosa +-1, Galeopsis speciosa +, Festuca drymeja +-1, Hepatica nobilis +, Carex pilosa +, Melampyrum bihariense +* Dacian, *Campanula persicifolia +, Galium schultesii +, Doronicum columnae +- 1, Stellaria holostea +, Campanula rapunculoides +, Sedum maximum +, Geum urbanum +, Pulmonaria*

officinalis +, Parietaria officinalis +-1, Circaea lutetiana +, Brachypodium sylvaticum +, Heleborus purpurascens +, Eupatorium cannabinum +, Urtica dioica +-1

Among the rare, endangered, vulnerable of the fauna met on the field we recall: *Podarcis muralis* (The common wall lizard), *Lacerta viridis* (The European Green Lizard), *Zamenis (Elaphe) longissimus* (Aesculapian snake), *Falco peregrinus* (The peregrine falcon), *Buteo buteo* (The common buzzard), *Pernis apivorus* (The European honey buzzard), *Streptopelia turtur* (The European turtle dove), *Upupa epops* (The common hoopoe), *Lullula arborea* (The woodlark), *Lanius excubitor* (The great grey shrike), *Phoenicurus ochroros* (The black redstart), *Picus viridis* (The European green woodpecker), *Picus canus* (The grey-headed woodpecker), *Emberzia cia* (The rock bunting), *Strix uralensis* (The Ural owl), *Plecotus auritus* (The brown long-eared bat), *Martes martes* (The European pine marten), *Capreolus capreolus* (The European roe deer).

Forest District Beiuş, management unit III Sohodol,

Descriptions in situations representative for HCVF3 B1(HCVF 4.2) Hills beech stands (*Fagus sylvatica*) with *Vaccinum.*

Ecosystem type: 3356 Beech stand with *Vaccinum*.

Forest type: 4242 Hills beech stand with *Vaccinum.*

Forrest site type: 4310 Mountain – pre-mountain of beech stands Pi, spodosols + lithic soils, medium edaphic type with *Vaccinum.*

Habitat: R 4107 South-east Carpathian beech forests (*Fagus sylvatica*), and fir (*Abies alba*) with *Vaccinium myrtillus.*

Plant Association: *Hieracio rotundatae – Fagetum* (Vida 1963) Täuber 1987

The topic chosen for scientific research aimed at highlighting the high conservation values (HCVs) existing within the Beiuş Forest District forests and then to select the representative beech forests encompassing these values in order to be reserved in forests certification process in order to conserve and enhance biodiversity.

An extensive scientific documentation work was required regarding Beiuş Forest District forests, Management unit (Mu) III Sohodol, their conservation status, types of ecosystems they contain to be subsequently selected only those forests which contain high conservation values and which through certification be totally protected or managed conservatively in order to preserve their biodiversity.

By performing the phytocenologic surveys in the beech forests selected as carriers of high conservation values we managed to put together a certain volume of scientific material based on which there were established ecosystems containing high conservation values and which by their natural, unaltered state can ensure the future preservation of such values.

CONCLUSIONS

1. Through research work conducted in the beech forests within Beiuş Forest District a research model was created that can be expanded in the

selection process for other high conservation value forests to be protected by the forest certification action in other forest districts within the forests districts under the Bihor County Forestry Division or throughout the country.

2. By this field research of roughly 220 compartments there were chosen the most representative forests containing high conservation values to a share of 10%, out of which 5% of the afforested area is intended to be totally protected in protected areas by a total ban on logging, and another part totaling around 5% is included in the conservation area where forest management special measures should apply.

REFERENCES

1. Abrudan, I.V., Stanciu, E., Ignea, G., Rogozea, L., 2006: Forest management and conservation in Retezat National Park, In: Transylvanian Review of Systematical and Ecological Research, Vol. 3 – Retezat Mountains Biodiversity, pp. 147-156, Sibiu.
2. Abrudan, I.V., Mihăilă, E., Costăchescu, D., Gurean, D., 2009: Forest vegetation management in Romania, In: Forest vegetation management in Europe: current practice and future requirements, Editors: Willoughby, I., Ballandier, Ph., Bentsen, N.S., McCarthy, N., Claridge, J., Cost Office, pp. 109-116, Brussels.
3. Biriş, I.A., 2001: Criterii de selecţie In: Pădurile virgine din România, Editura ASBL Forêt Wallone, Louvain la Neuve, Belgique, pp. 113-114.
4. Biriş, I.A., 2004: Contributions of the foresters to biodiversity conservation in Romania. In: Bioplatform – Romanian National Platform for Biodiversity, Editura Vergiliu, 130 p., Bucuresti.
5. Biris, I.A., and P.Veen (ed), 2005 : Virgin Forests In Romania: Inventory and Strategy for sustainable management and protection of virgin forests in Romania. Project report. Bucharest. 50p.
6. Biriş, I.A., Doniţă, N., Radu, S., Cenuşă, R., 2002: Ghid pentru selectarea şi evaluarea ecologică a pădurilor virgine din România, 55p, Bucureşti.
7. Bogdan, Ş., Bozga, C., Lazăr, G., Tudoran, G.M., Stăncioiu, P.T., 2009: Habitate forestiere de interes comunitar incluse în proiectul LIFE 05 NAT/RO/000176. „Habitate prioritare alpine, subalpine şi forestiere din România" – Monitorizarea stării de onservare,. Editura Universităţii „Transilvania", 74 p., Braşov.
8. Cenuşă, R., 2001: Păduri virgine şi cvasivirgine din Munţii Călimani. In: Pădurile virgine din România. Editura ASBL Forêt Wallone, pp.177-182, Louvain la Neuve, Belgique.
9. Doniţă, N., 2001: Conceptul de „pădure virgină". In: Pădurile virgine din România, Editura ASBL Forêt Wallone, pp. 43-49, Louvain la Neuve, Belgique.
10. Doniţă, N., Biriş, I.A., 2001: Caracteristicile pădurilor virgine. In: Pădurile virgine din România, Editura ASBL Forêt Wallone, pp. 51-58, Louvain la Neuve, Belgique.
11. Giurgiu, V., 2001: Gospodărirea pădurilor virgine. In: Pădurile virgine din România, Editura ASBL Forêt Wallone, pp. 93-110, Louvain la Neuve, Belgique.
12. Ioraş, F., Abrudan, I.V., 2007: High Conservation Value Forest Identification and Management in Romania. In: Forest and sustainable development, Editura Universităţii Transilvania din Braşov, pp. 649-658.
13. Jennings, S., Nussbaum, R., Judd, N., Evans, T., 2003: The high conservation value forest toolkit, Edition I, ProForest, Oxford OX 12 HZ, UK, 3:1-62.
14. Nicolescu, N., 2000: Certificarea pădurilor din România, între FSC şi PEF, Revista pădurilor, 6: 41-45, Bucureşti.
15. Radu S., Bândiu, C., Coandă, C., Doniţă, N., Biriş, I.A., Teodorescu M.E., 2004: Conservarea pădurilor virgine, Edit. Geea, 51-57, Bucureşti.
16. Stanciu, E., Mihul, M., Dinicu, G., Iorgu, O., Abrudan, I. V., Biriş, I., Drăgoi, M., Dragoş, M., Doniţă, N., Filip, L., Ferko, J., Tamàs P., Comănescu - Paucă, M., Sandor, A., Tănăsie, L,., Tatole, V., 2004: Ghid practic pentru identificarea pădurilor cu valoare ridicată de conservare, (Cooperare între WWF şi IKEA pentru proiecte în domeniul forestier, un parteneriat pentru promovarea unei silviculturi responsabile), Bucureşti.
17. Stăncioiu, P.T., 2008: Silvicultura şi două concepte noi referitoare la conservarea biodiversităţii: „Păduri cu valoare ridicată de conservare" şi „Reţeaua Ecologică Natura 2000", 90 p.
18. Stăncioiu, P.T., Abrudan, I.V., Dutca, I., 2010: The Natura 2000 ecological network and forests in Romania: implication on management and administration. In: The International Forestry Review, vol 12, pp. 106-113.
19. Vlad I., Chiriţă, C., Doniţă, N., Petrescu, L., 1997: Silvicultură pe baze ecosistemice, Editura Academiei Române, 280 p., Bucureşti.