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THE CLASS *VACCINIO-PICEETEA* BR.–BL. 1939 IN THE ROMANIAN CARPATHIANS

Gheorghe COLDEA
Institute of Biological Research, 48 Republicii Street, **RO-400015 Cluj-Napoca, Romania**
e-mail: icb@cluj.astral.ro

Abstract: The paper presents the syntaxonomical classification of 1297 relevees from the South-Eastern Carpathians. These relevees, gathered from extensive literature sources, provide an ecological summary of forest associations and sub-associations from the class Vaccinio-Piceetea Br.-Bl. 1939 in the Romanian Carpathians. In the floristic structure of these syntaxa, there are numerous regional, carpathic and carpathic-balcanic species, supporting the validity of the syntaxa, which are considered to be regional vicariants of syntaxa described in the Western Carpathians and in the Alps.

Key words: Spruce, fir, larch, pine forest associations.

Introduction

The class Vaccinio-Piceetea Br.-Bl. 1939 comprises both coniferous forests and boreal-alpine scrubs, which in the south-eastern Carpathians are distributed between 1300 and 2200 m of elevation and form the typical vegetation of the upper montane and subalpine belts [2]. The area occupied by these forests and boreal scrubs is about 1,500,000 ha, that is 23% of the total woodland cover in Romania [11, 20].

The first phytocoenological research on this type of vegetation in Romania has been done by Borza (1934) in the Retezat Mountains [3] and Gușuleac (1933) in the Eastern Carpathians [14]. In the second half of the last century, the research has intensified, and several monographic papers have been published, on important mountain ranges from the Romanian Carpathians, such as the Sebeș Mts. [4], Parâng Mts. [7], Bucegi Mts. [2], Vlădeasa Mts. [20], Țarcu, Godeanu and Cerna Mts. [5], Siriu Mts. [11].

After 1990, such surveys covered more mountain massifs of Romania, e.g. Rodna Mts. [8], Cibinului Mts. [13], Iezer-Păpușa Mts. [1], Piatra Craiului [16], Hășmaș Mts. [17], Stânișoara Mts. [19].

In all these monographs there are phytocoenotic relevees and important ecological information on several types of vegetation from the class Vaccinio – Piceetea. Valuable phytocoenotic information on forests and subalpine shrubs from this class can also be found in geobotanical papers published in Romania and abroad.

Material and Method

For this paper we have collected from the aforementioned sources, 1297 phytocoenological relevees. Using characteristic and differential species, we have grouped the relevees in associations and sub-associations (Braun-Blanquet method, 1964). On the basis of

characteristic (diagnostic) species, we have grouped further these syntaxa into alliances and orders, with consideration to recent papers published in neighboring countries [8, 15, 22, 18]. The syntaxonomical results have allowed us to create a coenosystem for the forest and shrub associations grouped in the class Vaccinio-Piceetea.

Results and Discussions

Of the 1297 relevees processed, 744 are forest relevees (order Piceetalia excelsae Pawl. 1928), and 553 are relevees from the subalpine shrubs (Junipero – Pinetalia mugo Boşcaiu 1971).

As the 4 synthetic tables with the floristic and ecological description of the syntaxa occupy a much larger space, we will present here only the coenosystem of the class *Vaccinio-Piceetea* in Romania.

Cls. Vaccinio-Piceetea Br.-Bl. et al. 1939
Ord. Piceetalia excelsae Pawlowski 1928
Al. Piceion excelsae Pawlowski in Pawlowski et al. 1928
1a. As. Hieracio transsilvanici – Piceetum Pawl. et Br.-Bl. 1939 – typicum h.l.
1b. As. Hieracio transsilvanici – Piceetum – calamagrostetosum villosae subass. nov.
2. As. Soldanello oreodoxae – Piceetum Coldea et Wagner 1998 corr. h.l.
3. As. Doronico columnae – Piceetum Coldea 2002
4. As. Hieracio transsilvanici – Abietetum (Borhidi 1971) Coldea 1991
Al. Chrysanthemo rotundifolii – Piceion (Krajna 1933) Hadač 1962
1a. As. Chrysanthemo rotundifolii – Piceetum Krajna 1933 – typicum
1b. As. Chrysanthemo rotundifolii – Piceetum – athyretosum alpestris Pawl. et Walas 1949
2a. As. Equiseto sylvatici – Piceetum Šmarda 1950 –typicum
2b. As. Equiseto sylvatici – Piceetum – sphagnetosum wulfianii (Ştefureac 1977) stat. nov. h.l.
3. As. Bazzanio – Piceetum Br.-Bl. et Siss. 1939
Al. Dicrano – Pinion sylvestris (Libbert 1933) Matuszkiewicz 1962
1. As. Leucobryo – Pinetum Matuszkiewicz (1962) 1973
2. As. Daphno blagayanae – Pinetum Coldea et Pop 1988
3. As. Arctostaphyllo – Pinetum Putzer ex Eichberger et al. 2004
Al. Vaccinio uliginosi – Pinion sylvestris Passarge 1968
1. As. Vaccinio uliginosi – Pinetum Kleist 1929
2. As. Vaccinio uliginosi – Betuletum pubescentis Libbert 1933
Ord. Junipero-Pinetalia mugo Boşcaiu 1971
Al. Pinion mugo Pawlowski 1928
1a. As. Rhododendro myrtifolii – Pinetum mugo Coldea 1991 – typicum
1b. As. Rhododendro myrtifolii – Pinetum mugo – cetrarietosum islandicae subass. nov. h.l.
1c. As. Rhododendro myrtifolii – Pinetum mugo – seslerietosum haynaldianae subass. nov. h.l.
2. As. Adenostylo alliariae – Pinetum mugo (Sillinger 1933) Šiblik et al. 2005
3. As. Rhododendro myrtifolii – Pinetum cembrae (Borza 1934) nom. nov. h.l.
4a. As. Saxifrago cuneifoliae – Laricetum Coldea 1991 –typicum
4b. As. Saxifrago cuneifoliae – Laricetum –sorbetosum dacicae subass. nov. h.l.
Al. Junipero-Bruckenthalion (Horv. 1949) Boşcaiu 1971

1. As. Bruckenthalio – Juniperetum nanae Horvat 1938
2a. As. Campanulo abietinae – Juniperetum nanae Simon 1966 –typicum
2b. As. Campanulo abietinae – Juniperetum nanae –dryadetosum subass. nov. h.l.
Al. Rhododendro myrtifolii – Vaccinion Br.-Bl. 1926
1a. As. Rhododendro myrtifolii – Vaccinietum Borza 1959 –typicum
1b. As. Rhododendro myrtifolii – Vaccinietum –dryadetosum subass. nov. h.l.

The floristic structure of these forest and shrub associations is distinct from that of associations described in the Alps [22, 18] and partially distinct from associations described in the Western Carpathians [15, 8]. The difference between these associations comes from the presence of numerous regional carpathic and carpathic-balcanic species. The associations grouped in the order Piceetalia are individualized by the presence of the species *Hieracium transsilvanicum, Leucanthemum waldsteinii, Ranunculus carpaticus, Soldanella major, Soldanella hungarica, Soldanella oreodoxa, Soldanella marmarossiensis, Melampyrum saxosum, Pulmonaria rubra, Daphne blagayana*. The associations grouped in the order Junipero-Pinetalia mugo are individualized by the presence of the species *Rhododendron myrtifolium, Laserpitium krapfii, Sesleria rigida ssp. haynaldiana, Campanula abietina, Sorbus dacica, Aconitum tauricum, Hypericum richeri ssp. grisebachii, Potentilla ternata, Bruckenthalia spiculifolia, Campanula serrata, Salix kitaibeliana* şi *Thymus bihorensis*.

Given the floristic particularities of the syntaxa from the Romanian Carpathians mentioned above, we consider justified to mentain them as syntaxonomical units distinct from other units in Central Europe.

The detailed floristic structure and the ecological and corological description will be presented in a distinct book [10].

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CLASA *VACCINIO-PICEETEA* BR.–BL. 1939 ÎN CARPAŢII ROMÂNEŞTI

(Rezumat)

Articolul prezintă clasificarea taxonomică a 1297 de relevee din Carpații de Sud-Est, culese din literatura de specialitate. Releveele sumarizează din punct de vedere ecologic asociațiile și sub-asociațiile de pădure și arbustive din clasa Vaccinio-Piceetea Br.-Bl. 1939. În structura floristică a acestor sintaxoni, se regăsesc numeroase specii regionale, carpatice și carpato-balcanice, considerate a fi vicarianți regionali ai sintaxonilor descriși din Carpații de Vest și din Alpi.

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