K A N I T Z I A
Journal of Botany

Kanitzia 12: 75-149. Szombathely, 2004

SYNTAXONOMICAL CHECKLIST OF THE PLANT COMMUNITIES OF SZEKLERLAND (EASTERN TRANSYLVANIA)

ATTILA J. KOVÁCS
Berzsenyi College, Department of Botany, 9701-Szombathely, P.O.Box 170, Hungary

"To the memory of the sixty years old publication of the first overview about the Szeklerland's vegetation elaborated by Rezső Soó (1944)"

Abstract

Kovács J. A. (2004): Syntaxonomical checklist of the plant communities of Szekerland (Eastern Transylvania) – Kanitzia 12: 75-149.

The work is dealing with the survey of natural, semi-natural and synanthropic vegetation of the historical-ethnographic region of Szeklerland (Terra Siculorum, Székelyföld, Țara Secuilor) situated in the eastern part of Transylvania (Romania). The landscape components of this territory contain series of heterogenous microregions circumscribed by hills, plateaux, slopes, river-valleys, mountain massifs, depressions etc. inside of the two major geomorphological types: Transylvanian Basin and East Carpathians.

The geographical and ecological factors determine the particularities of vegetation units, the *hilly* and the *mountainous* vegetation, being characteristic for the region. During about a hundred years a high number of vegetation units (communities, alliances, suballiances etc.) has been described and analysed for this area using various methods of investigation and nomenclature, therefore the immense and sometimes confused material is not adequate scientific for comparisons and co-operations.

Using a large documentation and continuous personal investigation, the author presents a syntaxonomical introduction, a prodromus, trying to give an overview (conspectus) of the most important plant communities in this region, conform to the actual state of the coenological researches applying the rules of the International Code of Phytosociological Nomenclature (ICPN). The checklist enumeration presents the *plant communities* (cca 290 plant association) grouping them syntaxonomically in alliances, orders and classes, according to the modern monographies and syntaxonomical approaches. Every plant community has been named after the rules and in the spirit of the Code with the connected synonyms, and was followed by a short characterization referring to the habitat conditions *(ecology)*, the species composition *(flora)*, the main distribution, the chorology *(area)* and sometimes special taxonomical remarks *(note)*. So the enumeration gives adequate informations about the present situation of natural and synanthropic vegetation of the region with possibilities to be applied in management and nature protection.

Realizing the present checklist it was evidenced a series of zonal and characteristic communities of the alliances *Festucion rupicolae, Cirsio pannonici-Brachypodion, Danthonio alpinae-Brachypodion, Geranion sanguinei* (Transylvanian Basin), *Symphyto cordatae-Fagion, Lathyro*

hallersteinii-Carpinion, Hieracio lachenalii-Quercion petraeae, Piceion excelsae, Eriophoro-Pinion sylvestris, Festuco saxatilis-Seslerion bielzii, Caricion fuscae, Sphganion magellanici, Adenostylion alliariae, Rumicion alpini (East Carpathians) etc. It was concluded that, even if the most vegetation units present generally positive naturalness values, the environmental changes, the human pressure, the spreading of the invasive stands *(Fallopia x bohemica, Rudbeckia laciniata, Impatiens glandulifera, Solidago gigantea, Helianthus tuberosus agg.*, etc.) contribute to increase the vulnerability of coenopopulations and influence more and more the structure of plant communities, a process that requires new attitudes and urgent nature protection measures.
Key works: plant communities, phytocoenology, syntaxonomy, vegetation ecology, vegetation synthesis, invasive stands, nature conservation, Eastern Transylvania, Szeklerland, Romania

Introduction

In the south-eastern part of the Carpathian Basin, at the contact of the Transylvanian Basin with the East Carpathian mountains there is a historical-ethnographical region named in latin documents „Terra Siculorum", Székelyföld in Hungarian and Seklerland, Ţara Secuilor, Szeklerland in other modern languages with an area about 15000 square km². The object of the present stduy is circumscribed by the land of the historical counties Maros-Torda, Udvarhely, Csík and Háromszék, actually being part of the administrative territories of Maros (Mureş), Hargita (Harghita) and Kovászna (Covasna) counties (Transylvania, Romania).

The geographical position (Eastern Transylvania), the variety of the ecological factors (relief, geology, hydrology, soil, climate), the millenary old human influences, the special man-plant interactions, the traditional agriculture and forestry management determine heterogenous landscape unites, several small subregions and microregions (Sóvidék, Erdővidék, Nyárádmente etc.) with a high diversity of habitats, vegetation types, and plant communities respectively.

The dominant *relief* forms are plains, hills, river-valleys, plateaux, mountains, keys/gorges, slopes, and depressions but they are not distributed equally between the two major geomorphological units: Transylvanian Basin (Transylvanian Plateau) and East Carpathians. The Transylvanian Basin is mostly characterized by different kinds of plains and hills, eroded slopes. The mountainous East Carpathian landscape's specificity is given by the middle and high mountainous groups and the extended intra-Carpathian depressions. The *geological* structure of the mountainous regions is composed mainly by old chrystalline slates, flysch, volcanic rocks like andesite in the interior of Carpathians and basalt in the exterior of the mountains. The Transylvanian Plateau is composed mainly by sedimentary deposits: sandstone, limestone, conglomerate, clay, marls, sand, gravel etc. The *hydrological* conditions are determined by three river-systems collecting most of the precipitations: Olt (Olt), Maros (Mureş), Tatros (Trotuş), in close connection with other rivers and brooks: Kis-Küküllö (Târnava Mică), Nagy Küküllő (Târnava Mare), Feketeügy (Rîul Negru), Nyárád (Niraj), Fehérnyikó (Nico-Alba), Nagy-Homoród (Homorodu Mare), Kis-Homoród (Homorodu Mic), Kászon

(Caşin), Gagy (Geoagiu), Görgény (Gurghiu), Uz (Uz), Vargyas (Vârghiş), Küsmöd (Cuşmed) etc. As basic components of the habitats the *soil* types vary from the alluvial soils (sandy, black meadow and alkali soils) to the different kinds of brown forest soils (pseudogleic-brown, podzol-soils, ando-soils, rendzinas) and rocky soils. The *climate* conditions influence the biotope diversification especially by the temperature and the level of precipitations, the distribution of these major factors showing large variation in the region. The average annual temperature is about 7-9 °C in the south-western part of the region, but only 4-6 °C in the central mountain zone. The annual precipitation has also different values in the western and eastern parts of the region, in the plain, hilly or mountain zone, generally varying between 600-950 mm.

The continuous and long term interaction of the natural conditions determines a large variety of plant communities beginning from the vegetation of *swamps, fens,* and *peat bogs* to the diverse groups of *grassland, rocky coenoses* and *forest vegetation.* The various units of vegetation have been conserved, maintained and distributed in different levels of zone and belt (altitudinal) of vegetation. In the area of Szeklerland the following *zonal* units can be recognized.

The nemoral belt of common oak forests and of those mixed with common oak has a relatively limited spreading in the region being distributed mainly at the western part of the Szeklerland, especially in the area of Transylvanian Plain, Maros-Field, Küküllö-Plateau and border of the Brassó-Háromszék Depression. In the Bodok- and the Barót-Mts. the acidophilous oak forest stands can be locally extensive. The main competitors and the dominant species in this area are the species *Quercus petraea, Q. robur; Carpinus betulus, Acer campestre.* It is a particularity of the region that the thermophilous forest competitors are not present *(Quercus cerris,Q. frainetto)* or they rarely form natural forests *(Quercus pubescens).* In the valleys of the rivers, this belt arrives at the 800 m altitude coming in contact with the beech forests. The herbaceous vegetation is represented by dry- and semi-dry grasslands on sunny hills and eroded slopes (alliances Festucion rupicolae, Bromion erecti and Cirsio-Brachypodion pinnati).

The nemoral belt of pure beech forests and of those mixed with coniferous trees covers a large territory in the region especially in the western slopes of volcanic mountains (Görgény-, Hargita-Mts.). Extensive beech forests can be found also in the subcarpathian area (Regen-Hills, Sóvidék-Hills, Udvarhely-Hills, Homoród-Hills) and in the Bodok- and Persany-Mts. The Carpathian beech forest and the mixed forms climb up in the mountainous valleys to the 1300 m altitude. The main competitor species are *Fagus sylvatica, Carpinus betulus, Abies alba, Picea abies,* but in gorges and keys others can be dominant like *Acer pseudoplatanus, Fraxinus excelsior, Tilia platyphyllos* conserving various rare and valuable species that render the habitats colourful. The mesic-rich meadows and pastures (Arrhenatherion, Deschampsion, Cynosurion, Violion caninae) have a large extension.

The boreal belt of spruce and fir forests has the most extended area in Szeklerland, forming a real klimax belt in this region, distributed from the 700-800 m altitude from the intra-carpathian depressions to the superior limit of forests (1500-1650 m).

Beside the main competitors *(Picea abies, Abies alba, Pinus sylvestris, Alnus incana)*, a series of particular habitats (raised bogs, peat bogs, marshes) conserved here valuable glacial relics *(Betula humilis, B. nana, Ligularia sibirica, Lysimachia thyrsiflora, Vaccinium oxycoccus, Andromeda polifolia, Viola epipsila, Saxifraga hirculus* etc.). The rocky vegetation and the extensive mountainous grasslands with several local taxa (Seslerio-Festucion pallentis, Festuco-Seslerion bielzii, Cynosurion, Nardion strictae) constitute another characteristic of this belt.

The subalpine belt of juniper trees has only a fragmentary distribution. Characteristic stands of *Pinus mugo* appear in the tops and peaks of Kelemen- and Bereck-Mts. (Górhegy), the communities with *Juniperus sibirica, Vaccinium myrtillus* and *Vaccinium vitis-idaea* generally are frequent in the superior mountain area and in the subalpine belt (mostly around and above 1700 m altitude), but stands with *Dryas octopetala* have only a limited presence (Nagyhagymás-Mts.). The humid and cool valleys, rocky places, eroded slopes conserved interesting coenopopulations of *Alnus viridis* (Görgény-, Hargita- and Bereck-Mts.). The main mountain tops generally are covered by subalpine-alpine grasslands of *Festuca supina, Nardus* and *Vaccinium mixtures* (Caricion curvulae, Nardion strictae).

Related to the *historical background,* studies concerning the vegetation of this region started at the beginning of the 20th century. The first phytogeographical characterization was given by PAX (1908) for the East-Carpathian area, the first chorology of forest species and shrubs was given by FEKETE and BLATTNY (1913). These were followed by the general description of some vegetation units realized by MOESZ (1910), NYÁRÁDY (1929, 1931, 1937), BORZA (1931), and Pop E. (1931). In the first part of the 20th century the up to date investigation and exploration of natural vegetation using authentic phytosociological methods and analyses (relevés) belongs to SOÓ (1927, 1930a,b, 1940, 1944), GUŞULEAC (1932), ŢOPA (1933), HARGITAI (1942, 1943), ÚJVÁROSI (1941) and ZÓLYOMI (1939, 1943). New additions, conclusions of former research and the first synthesis about the main components, the general distribution and structure of plant communities in Szeklerland were published sixty years ago by SOÓ (1944). In this works the author recognized 32 alliances and 52 plant association for the region.

In the second part of the 20th century the scientific research of vegetation concerned mainly the theme "flora and vegetation", elaborated in various diploma-works, thesis-works, pratological and sylvicultural studies (grassland and forest typology), pedological and ecological investigations. A series of basic and applied studies contributed to the description, analysis and evaluation of various plant communities of the region: ANDREI (1963), BORZA and RAŢIU (1970), COLDEA and KOVÁCS (1969), CSŰRÖS (1951, 1970), CSŰRÖS et al. (1960-1985), DAŃCIU (1970-1974), DAŃCIU and KOVÁCS (1972), DOBRESCU and GHENCIU (1970), HÖHN (1992), GERGELY et al. (1973-1989), GYÖRGY et al. (1985), KOVÁCS A. (1962-1971), KOVÁCS AL. (1969-1981), KOVÁCS J. A. (1970-1981), KOVÁCS J. A. et al. (1977-1985), MITITELU et al. (1984-1993), PÁLI (1960-1969), PUSCARU-SOROCEANU et al. (1960, 1968), RAŢIU (1968-1972), RAŢIU and

GERGELY (1971-1981), SOÓ (1949-1980), VICOL et al. (1971) etc. The most important plant communities have been registered in several regional and national overviews as: BELDIE and DIHORU (1967), COLDEA (1991, 1997), CSŰRÖS-KÁPTALAN (1970), DOBRESCU and KOVÁCS (1972), POP (1968), POP et al. (2002), SANDA et al. (1999, 2001). The research activity related to vegetation science have been continued and progressed in the last decade also, attaining important new additions and fundamental contributions like: EPURAN (2001), HÖHN (1994, 1998), KATÓ (2000), KOVÁCS J. A. (2002, 2003), NECHITA (2000, 2003), NECHITA and MITITELU (1996), OROIAN (1995, 1998), SĂMĂRGHITAN (1999, 2000, 2003). Valuable botanical informations especially in relation to the distribution of such vegetation units can be found in the ethnobotanical and other connected works: CSEDŐ et al. (1968), GUB (1996), PÁLFALVI (2001), RAB (2001), RÁCZ and CSEDŐ (1970), RÁCZ and RÁCZ (1975).

After about a hundred years of sustained studies of phytogeography and vegetation science of Szeklerland, we can conclude that despite the profound transformation of several vegetation units, there exists at the present time a very large diversity of plant communities in the region (cca 290 units), most of them with positive naturalness value. It is necessary to apply further natural protection measures for maintenance and conservation of the scientifically important vegetation units. Working to elaborate the materials of the present conspectus it was possible to establish that during the years the different kinds of plant communities have been described under various research methods (dominancy, floristico-ecologic, typologic, etc.), for various aims (scientific, pratologic, sylvicultural, nature protection etc.) using various analyses and evaluation methods of diverse schools. So without to apply with consistency an adequate syntaxonomical sytem and modern nomeclature, it is very hard to compare them with those of other regions or countries.

Actually in the period of extensive European co-operations, the indication of the European Vegetation Science (EVS) board is to use and apply the rules of the International Code of Phytosociological Nomenclature (ICPN) for valid scientific description, characterization and evaluation of vegetation units. In this sense the present work is an introduction, a prodromus, trying to give an overview about the most important plant communities in the historical-ethnographic region of Szeklerland, using the new approaches in phytosociology. The conclusion of this synthesis evidenced that applying the rules of the Code, the names of a series of plant communities previously described actually are necessary to be re-considered as: *nomen invalidum (nom. inval.), nomem illegitimum (nom. illeg.), nomen conservandum (nom. cons.), nomen ambiguum (nom. ambig.), nomen inversum (nom. invers.), nomen mutatum (nom. mut.)* etc. A series of characteristic communities can be found in the alliances *Caricion fuscae, Caricion davallianae, Sphagnion magellanicii, Festuco saxatilis-Seslerion bielzii, Thymo comosi-Festucion rupicolae, Cirsio pannonici-Brachypodion pinnati, Geranion sanguinei, Symphyto cordatae-Fagion, Lathyro hallersteinii-Carpinion Luzulo-Fagion, Hieracio lachenalii-Quercion, Alnion incanae, Salicion cinereae, Eriophoro-*

Pinion sylvestris, Piceion excelsae etc. Evaluating the syntaxonomical nomenclature, and continuing this in the near future, we will be able to approach more and more to the modern system of plant communities with a general scientific benefit.

In the present enumeration, every plant community is arranged hierarchically in one of the currently accepted coenological alliances-suballiances and, after the actual name of the plant community (considered as the correct name) the following features are indicated:

- *synonym-synonymous* name/names, the frequent earlier used name, several times with indication of the restricted articol of the code (Syn.)
- *ecology,* the preferable environmental factors and important habitat type/s (Ecol.)
- *flora,* species of recognition, diagnosis or/and frequent species (Flor.)
- *area,* distribution, chorology of plant community (cf. landscape division) (Area)
- *note,* remarks/observations related to the critical problems of classification (Note).

The general view of the communitys' distribution in the region is indicated by short characterizations: *rare, sporadic, frequent, common.* The plant communities without any author's specification are considered association after the dominant species as „dominant community" (dom. comm.) inside of different classes and/or „Derivate community" (DC) specifying mostly the invasive vegetation.

SYNOPSIS OF HIGHER SYNTAXONOMICAL UNITS (CLASSES) TREATED

Fresh water aquatic vegetation

Lemnetea de Bolós et Masclans 1955
Potametea Klika in Klika et Novák 1941

Vegetation of swamps and fens

Isoëto-Nanojuncetea Br.-Bl. et R. Tx. ex Westhoff et al. 1946
Phragmiti-Magnocaricetea Klika in Klika et Novák 1941

Vegetation of springs, bogs and fens

Montio-Cardaminetea Br.-Bl. et Tx. ex Klika 1948
Scheuchzerio-Caricetea fuscae R. Tx. 1937
Oxycocco-Sphagnetea Br.-Bl. et Tx. ex Westhoff et al. 1946

Chasmophytic vegetation

Asplenietea trichomanis (Br.-Bl. in Meier et Br.-Bl. 1934) Oberd. 1977
Thlaspietalia rotundifolii Br.-Bl. 1948

Arctic, subalpine and alpine vegetation

Juncetea trifidii Hadač in Klika et Hadač 1944
Carici rupestris-Kobresietea bellardii Ohba 1974
Elyno-Seslerietea Br.-Bl. 1948
Mulgedio-Aconitetea Hadač et Klika in Klika et Hadač 1944

Temperate grasslands and heathlands

Molinio-Arrhenatheretea R. Tx. 1937
Calluno-Ulicetea Br.-Bl. et R. Tx. ex Westhoff et al. 1946

Festuco-Brometea Br.-Bl. et R. Tx. ex Klika et Hadač 1944
Thero-Suaedetea Vicherec 1973 em. Borhidi 2003
Festuco-Puccinellietea Soó 1968 em. Borhidi 2003
Trifolio-Geranietea sanguinei T. Müller 1961

Synanthropic vegetation

Stellarietea mediae R. Tx., Lohm. et Prsg. ex von Rochow 1951
Artemisietea vulgaris Lohm. et al. ex von Rochow 1951
Bidentetea tripartiti R. Tx. et al. ex von Rochow 1951
Galio-Urticetea Passarge ex Kopecký 1969
Polygono arenastri-Poëtea annuae Rivas-Martinez 1975 corr. Rivas-Mart. et al. 1991

Vegetation of clearings

Epilobietea angustifolii R. Tx. et Prsg. ex von Rochow 1951

Temperate and boreal woodlands and shrubs

Salicetea purpureae Moor 1958
Alnetea glutinosae Br.-Bl. et Tx. ex Westhof et al. 1946
Rhamno-Prunetea Rivas-Goday et Borja Carbonell 1961
Querco-Fagetea Br.-Bl. et Vlieger in Vlieger 1937
Erico-Pinetea I. Horvat 1959
Vaccinio-Piceetea Br.-Bl. in Br.-Bl. et al. 1939

LANDSCAPE DIVISION

(Geografia României 1983; Magyarország földje és a Kárpát-medence 2002)
(Map 1, Map 2)

Transylvanian Basin (Erdélyi-medence, Depresiunea Transilvaniei)

A. *Transylvanian Plain (Erdélyi-Mezőség, Câmpia Transilvaniei)*
A1 Maros-Plain (Marosi-Mezőség, Déli- vagy Sármási-Mezőség, Székely-Mezőség, Câmpia de Sud, Câmpia Şarmaşului)
A2 Maros-Field (Marostere, Marosmező, Culoarul Mureşului)
B. *Küküllő-Plateau (Küküllők dombsága, Podişul Târnavelor)*
B1 Nyárád-Valley and Hills (Nyárádmente, Valea şi Dealurile Nirajului)
B2 Kis-Küküllő Valley and Hills (Kis-Küküllő völgye, Culoarul Târnavei Mici)
B3 Nagy-Küküllő Valley and Hills (Nagy-Küküllő völgye, Culoarul Tîrnavei Mari)
B4 Küküllőköz-Plateau (Küküllőközi-dombság, Podişul Dumbrăvenilor)
C. *Subcarpathians (Szovátа-Udvarhelyi dombvidék, Subcarpaţii Transilvaniei)*
CA Regen-Hills (Régeni-dombság, Dealurile Reghinului/Mureşului)
C1 Sóvidék-Hills (Sóvidéki-dombság, Subcarpaţii Târnavei Mici)
C2 Udvarhely-Hills (Udvarhelyi-dombság, Subcarpaţii Odorheiului)
C3 Homoród-Hills (Homoródi-dombság, Subcarpaţii Homoroadelor)

East Carpathians (Keleti Kárpátok, Carpaţii Orientali grupa centrală si sudică)

D. *Volcanic series: Kelemen-Görgény-Hargita Mts. (Kelemen-Görgény-Hargita vulkáni hegyvonulat, Munţii vulcanici Căliman-Gurghiu-Harghita)*
D1 Kelemen-Mts. (Kelemen-havasok, Munţii Călimani)
D2 Maros-Key (Maros-szoros, Felső-Maros áttörés, Trecătoarea Mureşului Toplița-Deda)
D3 Görgény-Mts. (Görgényi-havasok, Munţii Gurghiului)
D4 Hargita-Mts. (Hargita-hegység, Munţii Harghita)
D5 Csomad-Mts.(Csomád-hegycsoport, Munţii Ciomatu)
D6 Görgény-Hargita Plateau (Görgény-Hargita vulkáni fennsík, Platoul Gurghiu-Harghita)
E. *Chrystalline-mesosoic Mts. series (Kristályos-mezozoós vonulat, Mţii cristalino-mezozoici)*
E1 Beszterce-Mts. (Besztercei-havasok, Munţii Bistritei)
E2 Gyergyó-Mts. (Gyergyói-havasok, Munţii Giurgeului)
E3 Nagyhagymás-Békás Mts. (Nagyhagymás-hegység, Muntii Hăşmaş; Békás-szoros, Cheile Bicazului)
E4 Naskalat-Mts. (Naskalat-hegycsoport, Munţii Năşcălat)
F. *Tatros-Mts. (Tatrosmenti-hegyvidék, Flis, Munţii Trotuşului, Mţii Flişului)*
F1 Tarkö-Mts. (Tarkő-hegység, Munţii Tarcăului)
F2 Csík-Mts. (Csíki-havasok, Munţii Ciucului)
F3 Nemere-Mts. (Nemere-hegység, Munţii Nemira)
G. *Bodok- and Barót-Mts.(Bodoki- és Baróti-hegység, Munţii Bodoc şi Baraolt)*
G1 Torjai-Mts. (Torjai-hegység, Munţii Turiei)
G2 Bodok-Mts. (Bodoki-hegység, Munţii Bodocului)
G3 Barót-Mts. (Baróti-hegység, Munţii Baraoltului)
H. *Persany-Mts. (Persányi-hegység, Munţii Perşani)*
H1 Rika-Mts. (Rika-hegység, Munţii Perşani de Nord)
H2 Vargyas-Key (Vargyas-szoros, Cheile Vârghişului)
I. *Curve of Carpathians (Kárpát-kanyar, Carpaţii de Curbură)*
I1 Bereck-Mts. (Berecki-havasok, Munţii Bretcului)
I2 Bodza-Mts. (Bodzai-havasok, Munţii Intorsurii Buzăului)
J. *Intra-Carpathian Depressions (Kárpátközi medencék, Depresiuni intra-carpatice)*
J1 Bélbor-Depr. (Bélbori-medence, Depresiunea Bilborului)
J2 Borszék-Depr. (Borszéki-medence, Depresiunea Borsecului)
J3 Gyergyó-Depr. (Gyergyói-medence, Depresiunea Giurgeu, Depresiunea Gheorgheni)
J4 Csik-Depr. (Csíki-medence, Depresiunea Ciucului)
J5 Kászon-Depr. (Kászoni-medence, Depresiunea Plăieşi)
J6 Brassó-Háromszék-Depr. (Brassó-Háromszéki-medence kismedencékkel; Depresiunea Braşov-Trei Scaune cu microdepresiuni)

LEMNETEA de Bolós et Masclans 1955
(Free-floating communities of still relatively nutrient-rich, fresh waters)
LEMNETALIA de Bolós et Masclans 1955
Riccio-Lemnion trisulcae R. Tx. et Schwabe-Braun 1974
Lemnetum trisulcae Knapp et Stoffers 1962
Ecol.: clearstagnant waters pools
Flor.: Lemna trisulca, Lemna gibba
Area: sporadic, locally frequent (A1, A2, B1, B2, B3, CA, C2, D2, G3, J3, J4, J6)
Lemnion minoris de Bolós et Masclans 1955 em. Borhidi 2001
Lemnetum minoris Soó 1927
[Syn.: Lemnetum minoris Oberd. 1957 (art. 3b, 31)]
Ecol.: stagnant waters, backwaters,
Flor.: Lemna minor, Lemna trisulca
Area: sporadic, locally frequent (B3, D2, E3, G2, G3, J3, J4, J6)
Note: The community was described with relevés from the Transylvanian Basin by Soó (1927), but later long time was included in Lemno-Utricularietum.
Lemnetum gibbae Miyaw. et J. Tx. 1960
Ecol.: stagnant eutrophic waters, backwaters, lakes
Flor.: Lemna gibba, L. trisulca, Ceratophyllum demersum
Area: sporadic (J6)

LEMNO-UTRICULARIETALIA Passarge 1978
Utricularion vulgaris Passarge 1964
Aldrovanda vesiculosa ass. (dom. comm.)
Ecol.: dystrophic fen waters, pools, backwaters
Flor. Aldrovanda vesiculosa
Area: rare (J6) Rétyi Nyír (Reci)
Lemno-Utricularietum vulgaris Soó 1928
Ecol.: backwaters, pools with euthropic-mesotrophic waters
Flor.: Utricularia vulgaris, Lemna minor, Myriophyllum spicatum
Area: rare (A1, C2, J6)
Utricularietum neglectae T. Müller et Görs 1960
Ecol.: stagnant waters
Flor.: Utricularia australis, Hydrocharis morsus-ranae, Lemna minor
Area: rare (D2)

HYDROCHARITETALIA MORSUS-RANAE Rübel 1933
Hydrocharition morsus-ranae (Passarge 1964) Westhoff et den Held 1969
Hydrocharitetum morsus-ranae van Langendock 1935
Ecol.: stagnant waters, margin of pools

Flor.: Hydrocharis morsus-ranae, Ceratophyllum demersum, C. submersusm, Lemna minor
Area: sporadic (A1, A2, D2)

Ceratophyllion Den Hartog et Segal 1964

Ceratophylletum demersi Hild 1956
Ecol.: eutrophic-hypertrophic stagnant waters, pools
Flor.: Ceratophyllum demersum, Lemna gibba, Potamogeton pectinatus
Area: sporadic (A1, A2, J6)

POTAMETEA Klika in Klika et Novák 1941
(Rooted, floating or submersed communities in mesotrophic-eutrophic fresh waters)

POTAMETALIA Koch 1926

Potamion lucentis Rivas Martinez 1973

Myriophylletum spicati Soó 1927
Ecol.: stagnant waters, pools
Flor.: Myriophyllum spicatum, Potamogeton lucens, P. perfoliatus
Area: common

Myriophyllo-Potametum Soó 1934
Ecol.: deep and shallow stagnant waters, pools
Flor.: Myriophyllum spicatum, M. verticillatum, Potamogeton perfoliatus, P. pectinatus
Area: common

Potamion pusilii Vollmar 1947 em. Hejný 1978

Potametum crispi Soó 1928
Ecol.: stagnant waters, ditches
Flor.: Potamogeton crispus, Lemna minor, L. gibba
Area: sporadic (J4)

Nymphaeion albae Oberd. 1957

Nymphaeetum albo-lutae Nowinski 1928
Ecol.: dead waters, ditches, canals, pools
Flor.: Nymphaea alba, Nuphar lutea
Area: rare (A1, J4, J6)

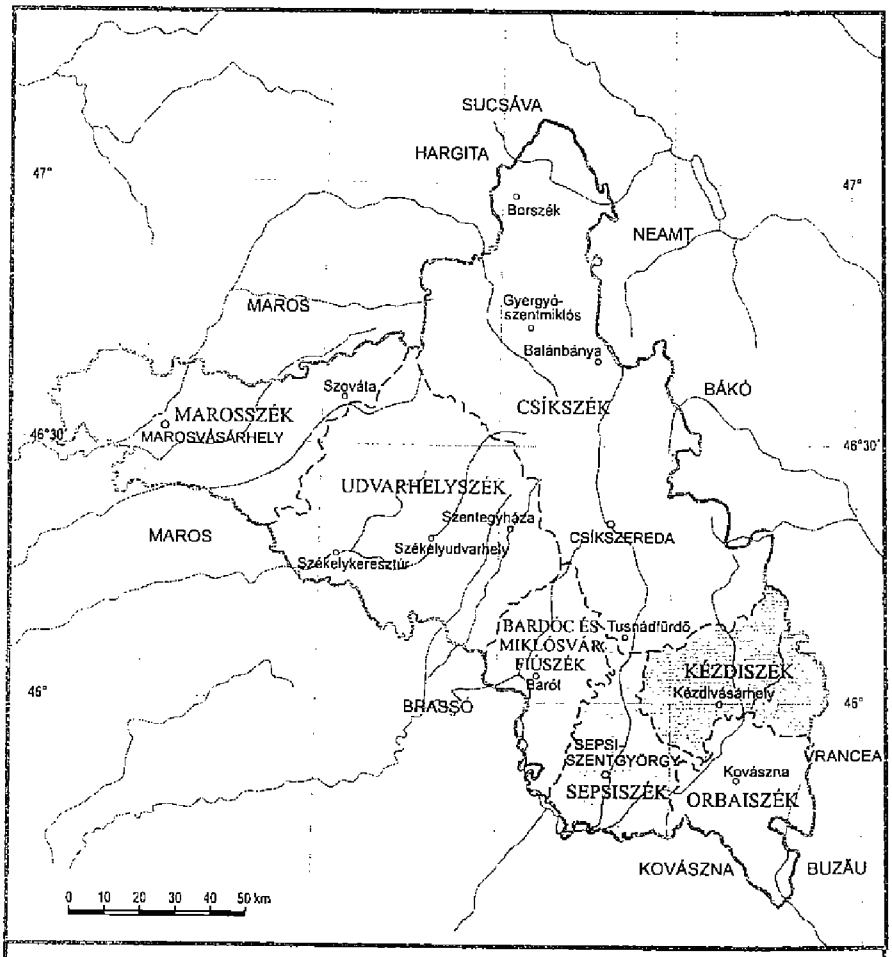
Potametum natantis Soó 1928
Ecol.: shallow stagnant waters and ditches
Flor.: Potamogeton natans, Myriophyllum spicatum
Area: frequent (A1, A2, D2, B3, E3, J3, J4, J6)

Polygonetum natantis Soó 1927
(Syn. Polygonetum amphibii Soó 1927)
Ecol.: pioneer vegetation of stagnant waters and canals
Flor.: Polygonum anphibium f. natans, Potamogeton natans
Area: sporadic (A1, A2, B2, B3, E3, J6)

CALLITRICHO-BATRACHIETALIA Passarge 1978
Ranunculion aquatilis Passarge 1964
Callitrichetum cophocarpae Pócs (1958) 1998
(Syn.: Ranunculo trichophylli-Callitrichetum Soó 1927)
Ecol.: puddles, slow-moving, shallov, still waters
Flor.: Callitriche cophocarpa, Callitriche palustris, Lemna minor
Area: sporadic (B2, B3, C2, E3, J3, J6)
Ranunculion fluitantis Neuhäusl 1959
Ranunculetum fluitantis s. l. (Allorge 1922) Koch 1926
Ecol.: water courses in the hilly-mountain region
Flor.: Ranunculus fluitans, Fontynalis antipiretica, Potamogeton nodosus
Area: rare (locally frequent J3, J4)

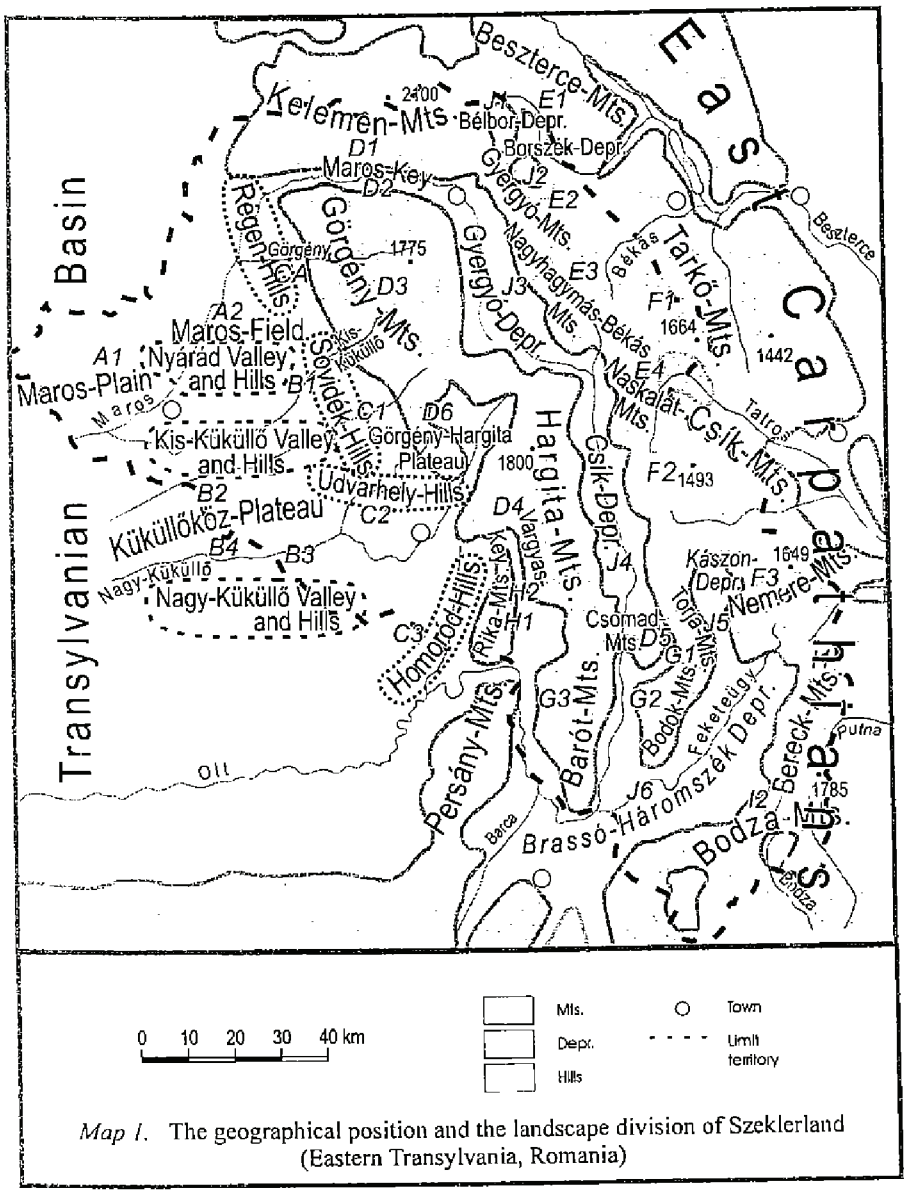
VEGETATION OF SWAMPS AND FENS

ISOËTO-NANOJUNCETEA Br.-Bl. et R. Tx. ex Westhoff et al. 1946
(Pioneer dwarf-cyperaceous vegetation on periodically flooded soils)
NANOCYPERETALIA Klika 1935
Nanocyperion Koch ex Libbert 1932
Cypero-Juncetum bufonii (Felföldy 1942) Soó et Csűrös 1949
(Syn: Juncetum bufonii-Potentilla anserina subass. Felföldy 1942)
Ecol.: pioneer vegetation on wet places and open habitats
Flor.: Juncus bufonius, J. articulatus, Cyperus fuscus, Mentha pulegium, Lythrum hyssopifolium
Area: sporadic (J4, J6, E3)
Cyperetum flavescentis Koch 1926 ex Aichinger 1933
(Syn.: Heleochareto-Cyperetum flavescentis Soó 1944)
Ecol.: wet places, open habitats, muddy substrata
Flor.: Cyperus flavescens, C. fuscus, Gnaphalium uliginosum, Eleocharis acicularis
Area: rare (C3, J6)
Ranunculus flammula ass. (domm. comm.)
Ecol.: wet places, open habitats, muddy substrata
Flor.: Ranunculus flammula, Eleocharis ovata
Area: rare (J6) Rétyi Nyír (Reci)
Dichostylido michelianae-Gnaphalietum uliginosi Timár 1947
[Syn.: Dichostylis micheliana ass. Soó 1940 (art. 2b.)]
Ecol.: wet places, streamsides, open habitats
Flor.: Cyperus (Dichostylis) micheliana, Gnaphalium uliginosum, Cyperus fuscus, Ranunculus sceleratus
Area: sporadic (J6) Rétyi Nyír (Reci)



Map 2.

The historical region of Szeklerland
(Székelyföld, Secuimea)
(Eastern Transylvania, Romania)



Map 1. The geographical position and the landscape division of Szeklerland (Eastern Transylvania, Romania)

PHRAGMITI-MAGNOCARICETEA Klika in Klika et Novák 1941
(Swamps, fens and marginal vegetation of fresh or brackish waters)
PHRAGMITETALIA Koch 1926
Phragmition australis Koch 1926

Phragmitetum communis Soó 1927 em. Schmale 1939

[Syn.: Scirpo-Phragmitetum W. Koch 1926 p.p. (art. 36), Phragmitetum australis auct (art. 30)]

Ecol.: wetlands, swamps of pools, marshlands

Flor.:Phragmites australis, Iris pseudacorus, Lythrum salicaria, Lycopus europaeus

Area: frequent (A1, A2, B1, B2, B3, CA, C1, C2, C3, D2,G2, G3, J3, J4, J5, J6), mainly alongside the rivers Maros (Mureş), Olt, Küküllő (Târnava), Nyárád (Niraj); several artificial pools (Bözödújfalu, Bita, Zeteváralja, Homoródszentpéter, Marossárpatak, Maksa etc.).

Schoenoplectetum lacustris Chouard 1924

Ecol.: water pools, stagnant waters

Flor.: Schoenoplectus lacustris

Area: sporadic (A1, C2, C3, G2)

Typhetum angustifoliae (Soó 1927) Pignatti 1953

Ecol.: wet places near the rivers, canals, swamps of pools

Flor.: Typha angustifolia, Solanum dulcamara

Area: frequent, mostly alongside the rivers Maros (Mureş), Olt, Küküllö (Târnava), Nyárád (Niraj), and artificial pools

Typhetum latifoliae (Soó 1927) Nowinski 1930

Ecol.: wet places near the rivers, canals, pools

Flor.: Typha latifolia, Solanum dulcamara

Area: frequent, mostly alongside the rivers Maros (Mureş), Olt, Küküllő (Târnava) artificial pools etc.

Typhetum schuttleworthii Soó 1927

Ecol.: montainous wet places, water fringing swamps

Flor.: Typha schuttlewortii, Phragmites australis, Poa trivialis

Area: sporadic (E3)

Equisetetum limosi Steffen 1931

[Syn. Equisetetum limosi Soó 1927 (art. 2b), Equisetetum fluviatilis auct. (art. 30), Scirpo-Phragmitetum equisetetosum fluviatilis Soó 1957 (art. 30)]

Ecol.: swamps and fens, turfy soils

Flor.: Equisetum fluviatile, Lythrum salicaria, Lysimachia thyrsiflora, Carex vesicaria, C. rostrata

Area: sporadic (E3, G2, J3, J4) [Lake-Gyilkos (Lacul Roşu), Mikóújfalu (Micfalău), Gyergyó-Depr. (Joseni-Voşlobeni), Csíkmadaras (Mădăraş), Csíkrákos (Racu), Verebes-Tusnád (Vrabia-Tuşnad Sat)]

Note: After the composition of vegetation, several stands with Equisetum limosum can be icluded in the alliance Magnocaricion.

Glycerietum maximae Hueck 1931

[Syn.: Glycerietum aquaticae Soó 1927 (art. 2b), Glycerietum aquaticae Hueck 1931 (nom mut. propos.)]

Ecol.: backwaters, marshy places, ditches. swamps of pools

Flor.: Glyceria aquatica, Alisma plantago-aquatica

Area: frequent (A1, A2, B3, C2, D2,G2, J3, J4, J6)

Thelypteridi-Phragmitetum Kuiper 1957

Ecol.: floating bogs, pools, dystrophic lakes

Flor.: Thelypteris palustris, Phragmites australis, Eriophorum gracile, Salix cinerea

Area: rare (C2) only as fragments in „Rât-tava" (Nagygalambfalva, Porumbenii Mari)

BOLBOSCHOENETALIA MARITIMI Hejný 1967

Cirsio brachycephali-Bolboschoenion (Passarge 1978) Mucina 1993

[Syn.: Bolboschoenion maritimi Soó 1947 (art.32); non Bolboschoenion maritimi Dahl et Hadač 1941]

Schoenoplectetum tabernaemontani Soó 1947

Ecol.: wet and secondary drying sites, salty

Flor.: Schoenoplesctus tabernaemontani, Eleocharis uniglumis

Area: sporadic (C3, G2)

Bolboschoenetum maritimi Eggler 1932

(Syn.: Schoenoplecti triquetri-Bolboschoenetum maritimi Zonnefeld 1960 p. p.)

Ecol.: wet places with brackish soils

Flor.: Bolboschoenus maritimus, Schoenoplectus triqueter, Schoenoplectus tabernaemontani

Area: sporadic (CA, C3)

Astero tripolii-Phragmitetum Krish (1972) 1974

Ecol.: wet places alongside slighty salt waters

Flor.: Aster tripolium subsp. pannonicum, Phragmites australis, Triglochin maritima

Area: sporadic (CA, C3)

NASTURTIO-GLYCERIETALIA Pignatti 1953

Glycerio-Sparganion Br.-Bl. et Sissingh in Boer 1942

Glycerietum fluitantis Eggler 1933

Ecol.: shallow waters, marshy places, banks of ditches

Flor.: Glyceria fluitans, Sparganium erectum subsp. erectum, Phalaroides arundinacea

Area: sporadic in marshes alongside the rivers

Veronico-Glycerietum notatae Soó 1973 corr. Borhidi 2001
[Syn.: Bas. Glycerietum plicatae Kovács M. 1962. non Kulczynski 1928, Veronico-Glycerietum plicatae Soó 1971 (art. 2b)]
Ecol.: marshy places alongside the mountainous creeks and springs
Flor.: Glyceria notata, G. fluitans, Veronica beccabunga, Myosotis palustris
Area: sporadic alongside the mountainous creeks

Calamagrostietum pseudophragmitis Kopecký 1968
Ecol.: stony places alongside the rivers, gravel banks
Flor.: Calamagrostis pseudophragmites, Phalaris arundinacea, Lycopus europaeus
Area: sporadic (A2, D2, J6)

Leersietum oryzoidis Eggler 1933
Ecol.: riversides, wet places and shallow waters
Flor.: Leersia oryzoides, Rorippa amphibia, Oenanthe aquatica, Ranunculus sceleratus
Area: sporadic, locally frequent alongside the rivers and lakes (B3,C2, E3)

OENANTHETALIA AQUATICAE Hejny in Kopecký et Hejný 1965
Oenanthion aquaticae Hejný ex Neuhäusl 1959

Oenantho aquaticae-Rorippetum amphibiae Lohmeyer 1950
Ecol.: marshy places, backwaters, flooding areas
Flor.: Oenanthe aquatica, Rorippa amphibia, Polygonum amphibium
Area: sporadic (C3, J6)

Eleocharitetum palustris Ubrizsy 1948
Ecol.: flooding areas, ditches, wet places
Flor.: Eleocharis palustris, Galium palustre, Triglochin palustris
Area: sporadic (D2, E3, J6)

MAGNOCARICETALIA Pignatti 1953
Magnocaricion elatae Koch 1926
Caricenion rostratae (Bal.-Tul. 1963) Oberd. et al. 1967

Caricetum elatae Koch 1926
Ecol.: wet fens and swamps of pools
Flor.: Carex elata, Galium palustre, Peucedanum palustre, Thelypteris palustris
Area: rare (D4, D6, J3, J4)

Caricetum paradoxae Soó in Aszód 1935
[Syn.: Caricetum appropinquatae Soó 1938, Caricetum paniculatae-paradoxae Soó 1949 (art. 29)]
Ecol.: wet fens and swamps
Flor.: Carex appropinquata, C. elata, Peucedanum palustre, Equisetum variegatum, Galium palustre
Area: sporadic (E3, G2, J3, J4, J6)

Caricetum paniculatae Wangerin ex von Rochow 1951
[Syn.: Caricetum paniculatae Wangerin 1916 (art. 2b), Caricetum paniculatae-paradoxae Soó 1949 (art. 29, 36)]
Ecol.: wet fens and springs
Flor.: Carex paniculata, Scutellaria galericulata, Carex elata
Area: sporadic (J3, J4, J6)

Equiseto limosi-Caricetum rostratae Zumpfe 1929
[(Syn.: Caricetum inflatae Rübel 1911 (art. 2b), Caricetum inflato-vesicariae W. Koch 1926 p.p)]
Ecol.: swamps and bogs, shallow waters
Flor.: Carex rostrata, Equisetum fluviatile, Comarum palustre, Lythrum salicaria
Area: sporadic (G2, F3, I1, J3, J4, J6) [Zalánpatak (Valea Zălanului), Uzonka-fürdő (Ozunca-Băi), Veresvíz (Apa Roşie), Lassúág, Heveder (Mţii Nemira), Egerrét (Zágon), Komandó (Comandău), Gyergyó-Depr., Csík-Depr., Rétyi Nyír (Reci)]
Note: A part of the phytocoenoses belong to the all. Caricion lasiocarpae. The stands of Calla palustris reflect this relation.

Calletum palustris (Ostwald 1923) Vanden Berghen 1952
(Syn.: Caricetum rostratae Ostwald 1923 em. Dierssen 1982 subass. calletosum palustris S. Oroian 1998 p.p.)
Ecol.: swamps, wet places
Flor.: Calla palustris, Carex rostrata, Galium uliginosum
Area: rare (D1, D2, D6)

Carici pseudocyperi-Menyanthetum Soó 1955
Ecol: wet fens, bogs, swamps
Flor.: Menyanthes trifoliata, Carex elata, C. pseudocyperus, C. appropinquata
Area: rare (C3, G2, D6, J3, J4)

Caricetum buxbaumii Issler 1925
Ecol.: swamps and bogs
Flor.: Carex buxbaumii, Carex nigra
Area: rare (J3, J4)

Calamagrostetum canescentis Simon 1960
(Syn. Caricetum elatae calamagrostietosum canescentis Krisai 1975; Calamagrostetum canescentis Podbielkowski 1970)
Ecol.: fen meadows, wet places
Flor.: Calamagrostis canescens, Peucedanum palustre, Galium palustre, Lysimachia thyrsiflora, L. vulgaris, Carex elata
Area: rare (J3, J4)

Caricenion gracilis (Neuhäusl 1959) Oberd. et al. 1967

Caricetum gracilis Almquist 1929
(Syn.: Caricetum acutiformis-gracilis Soó 1927 p.p.)
Ecol.: riverside, marshes, wet places
Flor.: Carex acuta (C. gracilis), C. acutiformis, Scutellaria galericulata

Area: frequent (G2, J3, J4); rare (D2)

Caricetum vesicariae Chouard 1924

[Syn.: Caricetum vesicariae Br.-Bl. et Denis 1926 (art. 31); Caricetum inflato-vesicariae Koch 1936 (art. 36)]

Ecol.: marshes, shallow waters

Flor.: Carex vesicaria, Sium latifolium, Carex rostrata

Area: frequent (G2, J1, J3, J4); rare (D2, E3)

Caricetum vulpinae Soó 1927

(Syn.: Caricetum vulpinae Nowinski 1928)

Ecol.: wet places, wet grasslands

Flor.: Carex vulpina, Galium palustre

Area: frequent (G2, J3, J4)

Caricetum distichae Nowinski 1928

[(Syn.: Caricetum intermediae Nowinski 1928 (nom. mut. propos.), Caricetum intermediae Steffen 1931 (art. 45), Caricetum distichae Jonas 1933 (art. 31), Caricetum vulpinae-distichae Soó 1944 p.p.)]

Ecol.: wetlands, swamps

Flor.: Carex disticha, Equisetum fluviatile, Galium palustre

Area: rare (G2, J4)

Caricetum acutiformis Eggler 1933

(Syn.: Caricetum acutiformis-ripariae Soó 1947 (art. 29.))

Ecol.: wet places, marshes and ditches

Flor.: Carex acutiformis, C. riparia, Lythrum salicaria

Area: frequent (G2, G3, J1, J3, J4, J6)

Galio palustris-Caricetum ripariae Bal.-Tul. et al. 1993

[Syn.: Caricetum acutiformis-ripariae Soó 1947 (art. 29.)]

Ecol.: backwaters, ditches, marshes, wet places

Flor.: Carex riparia, Galium palustre, Lysimachia vulgaris, Lythrum salicaria

Area: frequent (J3, J4)

Phalaridetum arundinaceae Libbert 1931

(Syn.: Poo palustris-Phalaridetum arundinaceae Passarge 1955)

Ecol.: wetlands, inundated shores, swamps

Flor.: Phalaris arundinacea, Galium palustre, Symphytum officinale, Poa palustris, Triglochin palustris

Area: frequent (A2, B2, B3, D2, G2, G3, J3, J4, J5, J6)

Vegetation of springs, bogs and fens

MONTIO-CARDAMINETEA Br.-Bl. et Tx. ex Klika 1948

(Vegetation of cold springs, commonly co-dominated by bryophytes)

MONTIO-CARDAMINETALIA Pawl. in Pawl. et al. 1948

Caricion remotae Kästner 1941
Cardaminetum amarae Br.-Bl. 1925
Ecol.: shaded springs in forests
Flor.: Cardamine amara, Caltha palustris subsp. laeta, Scirpus sylvaticus,
Area: sporadic (D4, D6)
Cardamino-Chrysosplenietum alternifolii Mass 1959
Ecol.: fens and wet places near acidophilous springs
Flor.: Chrysosplenium alternifolium, Cardamine amara, Impatiens noli-tangere
Area: sporadic (D2, D4)
Carici remotae-Calthetum laetae Coldea 1978
Ecol.: wet places alongside the montane rivers
Flor.: Caltha palustris subsp. laeta, Carex remota, Chrysosplenium alternifolium
Area: sporadic (D2, D4)
Cardamino-Montion Br.-Bl. 1926
Montio-Bryetum schleicheri Br.-Bl. 1925
Ecol.: acidiphilous clearly springs
Flor.: Bryum schleicheri, Brachythecium rivulare, Myosotis palustris
Area: sporadic (D4, D6)
Cratoneurion commutati Koch 1928
Carici lepidocarpae-Cratoneuretum filicini Kovács et Felföldy 1960 corr. Soó 1971
[Syn.: Carici (flavae)-Cratoneuretum filicini Kovács et Felföldy 1958 nom. prov. (art. 3b)]
Ecol.: wet places, basiphilous springs with mosses
Flor.: Carex lepidocarpa, C. flava, Cratoneuron commutatum, C. filicinum, Caltha palustris
Area: rare (E2, E3, J2)

SCHEUCHZERIO-CARICETEA FUSCAE R. Tx. 1937
(Bog pool, flush and transitional mires dominated by sedges and bryophytes)
SCHEUCHZERIETALIA PALUSTRIS Nordhagen 1937
Rhynchosporion albae W. Koch 1926
Caricetum limosae Br.-Bl. 1921
Ecol.: peat bogs, raised bogs
Flor.: Carex limosa, Carex nigra, Sphagnum cuspidatum
Area: rare (D1, D4, D5, D6, G2)
Caricion lasiocarpae Vanden Berghen in Lebrun et al. 1949
Caricetum lasiocarpae Oswald 1923 em. Dierssen 1982
Ecol.: peat bogs, wet places
Flor.: Carex lasiocarpa, C. panicea, Valeriana simplicifolia, Sphagnum warnstorfii
Area: rare: (D1, D5)

Caricetum diandrae (Jonas 1932) em. Oberd. 1957
Ecol.: peat bogs, wet places
Flor.: Carex diandra, C. nigra, Menyanthes trifoliata, Camptothecium lutescens, Pedicularis palustris
Area: sporadic (G1, G2, G3, J3, J6) [Torja-patak (Turia), Zsombor-patak (Valea Roşie) Uzonka-fürdő (Uzonka-Băi), Zalánpatak (Valea Zălanului), Gyergyó-Depr., Egerrét (Zagon)]

Carici lasiocarpae-Sphagnetum Zólyomi 1931
Ecol.: peat bogs
Flor.: Carex lasiocarpa, Carex rostrata, Lysimachia thyrsiflora, Peucedanum palustre, Sphagnum recurvum, Sph. palustre
Area: rare (D5)

CARICETALIA FUSCAE Koch 1926 em. Br.-Bl. 1949
Caricion fuscae Koch 1926 em. Klika 1934

Carici echinatae-Sphagnetum Soó 1954
Ecol.: acid peat bogs
Flor.: Carex echinata, C. nigra, C. rostrata, Eriophorum latifolium, Sphagnum recurvum, Sph. palustre, Sph. contortum
Area: sporadic (D1, D4, G2, J3), rare (J6) Egerrét (Zagon), (I1) Rozsdapatak (Comandău)

Caricetum nigrae Br.-Bl. 1915 (nom. mut. propos.)
(Syn.: Caricetum goodenowii Br.-Bl. 1915; Junco-Caricetum fuscae R. Tx. 1937 p. p.)
Ecol.: wet and acid places, peat mossy habitats
Flor.: Carex nigra, C. canescens, Epilobium palustre, Sphagnum warnstorfii, Ligularia sibirica, Juncus conglomeratus (Locally: Drosera rotundifolia, Viola epipsila, Ligularia sibirica)
Area: sporadic; locally frequent (D1, D3, G2, J3, J4, J6)

Calamagrostetum neglectae Tengwall 1920
Ecol.: fens, swamps, bogs
Flor.: Calamagrostis stricta, Carex acutiformis, Peucedanum palustris
Area: rare (J3, J4)

Sphagno-Caricetum rostratae Steffen 1931
Ecol.: peatbogs, turfy soils
Flor.: Carex rostrata, Sphagnum terres, Sph. russowi
Area: sporadic: D1, D4, J3, J4, D4, F3

CARICETALIA DAVALLIANAE Br.-Bl. 1949
Caricion davallianae Klika 1934

Caricetum davallianae Dutoit 1924
Ecol.: wet places, fens

Fig. 1. Population of *Dyras octopetala* on the peak of Nagyhagymás-Mts. (Öcsém)

Fig. 2. Extended mountainous pastures *(Agrosti-Festucetum rubrae)* with populations of *Picea abies* (Hargita-Mts.)

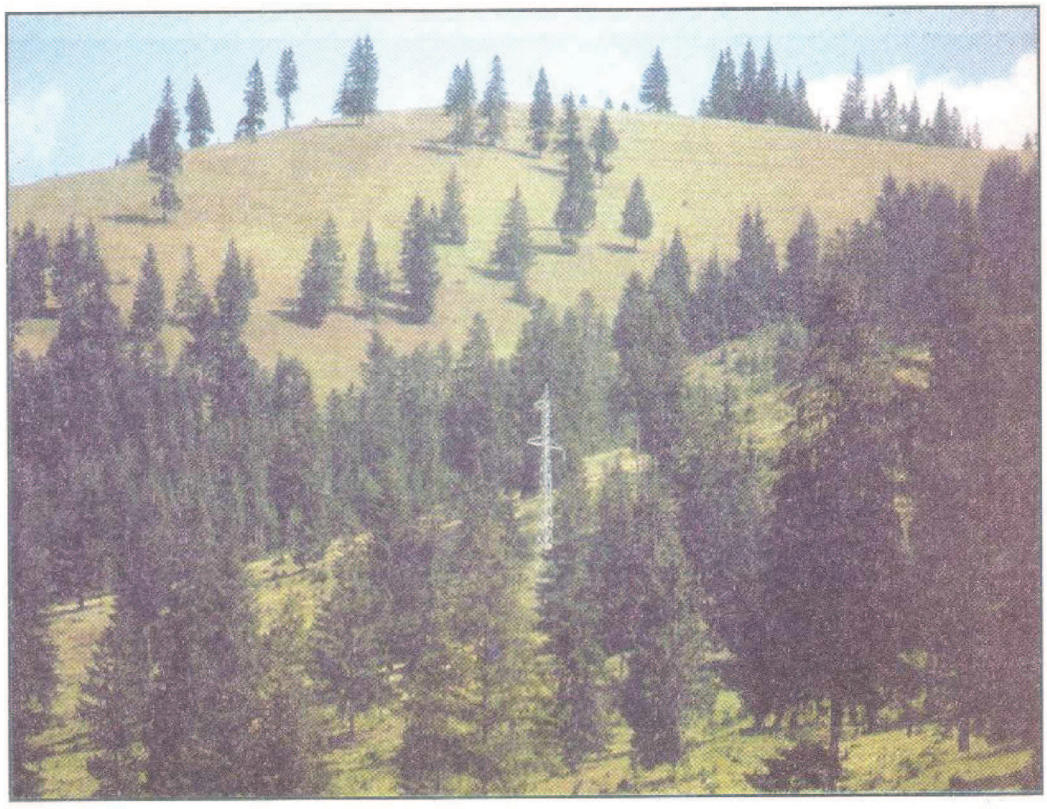


Fig. 3.
Populations of *Phlomis tuberosa* as a component of the *Cariceto humilis-Brachypodietum pinnati* (Székelykeresztúr, Cristuru-Secuiesc)

Fig. 4.
Details of *Eriophoro vaginati-Sphagnetum* with *Pinus sylvestris* (Lucs, Hargita-Mts.)

Flor.: Carex davalliana, C. panicea, C. dioica, Eriophorum latifolium, Valeriana simplicifolia
Area: rare (F2, J3, J4)

Seslerietum uliginosae Soó 1941
Ecol.: fen meadows, wet places
Flor.: Sesleria uliginosa, Galium boreale, Carex hostiana
Area: rare (J4)

Carici flavae-Eriophoretum Soó 1944
Ecol.: wet places, fen meadows
Flor.: Carex flava, C. lepidocarpa, Eriophorum latifolium, Gymnadenia conopsea, Potentilla palustris, Parnassia palustris
Area: sporadic; locally frequent (C2, D2, D3, D4, E3, G2, J1, J2, J3, J4, J6, I1)

OXYCOCCO-SPHAGNETEA Br.-Bl. et Tx. ex Westhoff et al. 1946
(Ombotrophic bog and wet hethland vegetation of acid oligotrophic peats)
SPHAGNETALIA MAGELLANICI Kästner et Flössner 1933
Sphagnion magellanici Kästner et Flössner 1933

Eriophoro vaginati-Sphagnetum recurvi Hueck 1925
Ecol.: raised bogs, acid oligotrophic peats
Flor.: Eriophorum vaginatum, Sphagnum palustre, S. magellanicum, S. fuscum, Vaccinium ocycoccos, Drosera rotundifolia, Andromeda polifolia
Area: rare (D4, D5, F3, G1, G2, I1) [Lucs, Ördögtó, Mohos, Lassúág, Veresvíz (Apa Roşie), Torja (Turia), Rozsdapatak (Comandău)]

Chasmophytic vegetation

ASPLENIETEA TRICHOMANIS (Br.-Bl. in Meier et Br.-Bl. 1934) Oberd. 1977
(Chasmophytic vegetation of rock faces, fissures and ledges)
TORTULO-CYMBALARIETALIA Segal 1969
Cymbalario-Asplenion Segal 1969

Asplenietum trichomanis-rutae-murariae Kuhn 1937
Ecol.: limestone rock fissures, dry sites
Flor.: Asplenium trichomanes, A. ruta-muraria, Cystopteris fragilis, Moehringia muscosa
Area: sporadic, locally frequent (E3, H1, H2, J2)

Jovibarbo soboliferae-Saxifragetum paniculatae Täuber 1987
Ecol.: limestone fissures, cracking rocks
Flor.: Saxifraga paniculata, Jovibarba globifera, Erysimum wittmannii subsp. transsilvanicum, Campanula carpatica
Area: rare (E1) (insufficiently studied)

Cystopteridion fragilis Richard 1972

Cystopteridetum fragilis Oberd. 1938

(Syn.: Asplenio-Cystopteridetum Oberd. 1949)

Ecol.: shadows rocky places, cracking limestones

Flor.: Asplenium trichomanes, A. viride, Cystopteris fragilis, Valeriana officinalis subsp.sambucifolia

Area: sporadic (H2, J2)

Thymo pulcherrimi-Poëtum rehmannii Coldea (1986) 1990

[Syn.: Poa rehnannii ass. Soó 1944 (art. 3b)]

Ecol.: calcareous rocky places, ledges

Flor.: Poa rehmannii, Cystopteris fragilis, Asplenium viride, Thymus pulcherrimus, Pedicularis comosa, Cerastium alpinum

Area: rare (E3)

Asplenio qudrivalenti-Poëtum nemoralis Soó1944 ex Gergely et al. 1966

[Syn.: Poëtum nemoralis muscosum Soó 1944, Asplenio-Poetum nemoralis Soó 1944 (art. 2), Poetum nemoralis calcicolum Csűrös 1958 (art. 34)]

Ecol: basiphilous rocky places, shadow sites

Flor.: Ctenidium molluscum, Asplenium trichomanes subsp. quadrivalens, Moehringia muscosa, Cystopteris fragilis, Poa nemoralis, Cardaminopsis arenosa, Sedum hispanicum

Area: sporadic (E3, J2)

ANDROSACETALIA VANDELLII Br.-Bl. in Meier et Br.-Bl. 1934

Asplenion septentrionalis Oberd. 1938

Asplenietum septentrionalis Schwickerath 1944

Ecol.: sites on volcanic and acid substrate

Flor.: Asplenium septentrionale, Campanula rotundifolia, Melica transsilvanica

Area: sporadic (C2, D4)

Asplenietum septentrionali-adianti-nigri Oberd. 1938

Ecol.: sites on volcanic substrates

Flor.: Asplenium adiantum-nigrum, Silene dubia

Area: sporadic (C2, D4, F3)

Asplenio trichomani-Poëtum nemoralis Boşcaiu 1971

Ecol.: mountaneous volcanic substrates

Flor.: Asplenium trichomanes subsp. trichomanes, Asplenium septentrionale, Poa nemoralis, Sedum maximum

Area: sporadic (D2, D4)

Sempervivetum heuffelii Schneider-Binder 1969

Ecol.: montainous rocky places, fissures

Flor.: Jovibarba heuffelii, Asplenium septentrionale, Sedum maximum

Area: sporadic (D2)

Hypno-Polypodion Mucina 1993

Hypno-Polypodietum Jurko et Peciar 1963

Ecol.: shaded crevices, mainly on volcanic acid substrates (colline-submontane belt)

Flor.: Polypodium vulgare, Hypnum cupressiforme, Sedum maximum, Epilobium collinum, Poa nemoralis, Cardaminopsis arenosa

Area: sporadic (C2, D6)

POTENTILLETALIA CAULESCENTIS Br.-Bl. in Br.-Bl. et Jenny 1926

Gypsophilion petraeae Borhidi et Pócs 1957

Artemisio erianthae-Gypsophiletum petraeae Puşcaru et al. 1956

(Syn.: Artemisio baumgartenii-Gypsophiletum petraeae Puşcaru et al. 1956)

Ecol.: crevices and sunny calcareous places

Flor.: Gypsophila petraea, Draba kotschyi, Eritrichium nanum subsp. jankae, Androsace villosa subsp. arachnoidea, Bupleurum diversifolium

Area: rare (E3)

Saxifrago luteoviridis-Silenetum zawadzkii Pawl. et Walas 1949

Ecol.: calcareous rocky places

Flor.: Silene zawadzkii, Saxifraga luteoviridis, S. paniculata, Trisetum alpestre, Asplenium trichomanes,

Area: rare (E3)

THLASPIETEA ROTUNDIFOLII Br.-Bl. 1948

(Vegetation of screes, gravel river-banks and rubbles)

THLASPIETALIA ROTUNDIFOLII Br.-Bl. in Br.-Bl. et Jenny 1926

Papavero-Thymion pulcherrimi I. Pop 1968

(Syn.: Thlaspion rotundifolii Br.-Bl. 1926 em. Zollitsch 1966 p.p.)

Acino-Galietum anisophylli Beldie 1967

(Syn.: Calamintha baumgarteni-Galium anisophyllum ass. Beldie 1967)

Ecol.: calcareous screes and rubbles of subalpine belt

Flor.: Acinos alpinus subsp. baumgarteni, Galium anisophyllum, Arabis alpina, Thymus pulcherrimus

Area: rare (E3)

Sedo fabariae-Geranietum macrorrhizi Boşcaiu et Täuber 1977

Ecol.: calcareous screes and rubbles

Flor.: Geranium macrorrhizum, Arabis alpina, Geranium robertianum, Acinos alpinus, Bupleurum falcatum

Area: rare (E3)

JUNCETEA TRIFIDI Hadač in Klika et Hadač 1944
(Swards on lime-poor humic soils in the subalpine-alpine belt)
CARICETALIA CURVULAE Br.-Bl. in Br.-Bl. et Jenny 1926
Caricion curvulae Br.-Bl. in Br.-Bl. et Jenny 1926
Festucetum supinae Domin 1933 s. l.
[Syn.: Potentillo chrysocraspedae-Festucetum airoidis Boşcaiu 1971 (art. 43)]
Ecol.: mountane subalpine grasslands on poor acid soils
Flor.: Festuca supina, Geum montanum, Potentilla ternata, Antennaria dioica, Nardus stricta
Area: sporadic, locally frequent (D4, E3, F3, I1)
Loiseleurio-Vaccinion Br.-Bl. 1926
Empetro-Vaccinietum gaultherioidis Br.-Bl. 1926
(Syn.: Cetrario-Vaccinietum gaultherioidis Hadač 1956)
Ecol.: chionophilous heath with scheletic soils
Flor.: Empetrum nigrum (incl. subsp. hermaphroditum), Vaccinium gaultherioides, V. myrtillus, V. vitis-idea, Juniperus sibirica, Cetraria islandica
Area: rare (E3) Nagyhagymás-Mts., (I1) Bereck-Mts. (Lakóca, Vf. Lăcăuți).

CARICI RUPESTRIS-KOBRESIETEA BELLARDII Ohba 1974
(Subalpine and alpine grasslands and dwarf-shrub heaths)
OXYTROPIDO-ELYNETALIA Oberd. 1957
Oxytropido-Elynion Br.-Bl. 1949
Sileno zawadzkii-Caricetum rupestris Täuber 1987
Ecol.: alpine-subalpine calcareous steep slopes
Flor.: Carex rupestris, Silene zawadzkii, Cerastium alpinum subsp. lanatum, Helianthemum alpestre, Dryas octopetala
Area: rare (E3)
Achilleo schurii-Dryadetum (Beldie 1967) Coldea 1984
Ecol.: alpine calcareous rocky places
Flor.: Dryas octopetala, Achillea schurii, Cerastium alpinum subsp. lanatum, Aster alpinus, Polygonum viviparum
Area: rare (E3)

ELYNO-SESLERIETEA Br.-Bl. 1948
(Alpine and subalpine calcareous grasslands)
SESLERIETALIA ALBICANTIS Br.-Bl. 1926
Festuco saxatilis-Seslerion bielzii (Pawl. et Walas 1949) Coldea 1984
Festucetum saxatilis Domin 1933
[Syn.: Festuca saxatilis-Festuca versicolor-Carex sempervirens ass. Soó 1944

p. p.; Seslerieto-Festucetum saxatilis Beldie 1967 (art. 25)]
Ecol.: subalpine calcareous terraced slopes
Flor.: Festuca rupicola subsp. saxatilis, Carex sempervirens, Thymus pulcherrimus, Dianthus tenuifolius, Cerastium arvense
Area: sporadic (E3)

Seslerio-Festucetum versicoloris Beldie 1967
Syn.: Festuca versicolor-Carex sempervirens ass. Soó 1944, Festucetum versicoloris transsilvanicum Soó 1944 (art. 34)]
Ecol.: subalpine rocky places
Flor.: Festuca versicolor, F. rupicola subsp. saxatilis, Carex sempervirens, Dryas octopetala, Galium anisophyllon, Cerastium lerchenfeldianum
Area: rare (E3)

Diantho tenuifolii-Festucetum amethystinae (Domin 1933) Coldea 1984
[Syn.: Festucetum amethystinae Soó 1944, Festucetum amethystinae Puşcaru et al. 1956 (art. 36); Festucetum amethystinae Pawlowski 1923 transsilvanicum Nyárády 1967 (art. 34)]
Ecol.: calcareous rocky places
Flor.: Festuca amethystina subsp. orientalis, Dianthus tenuifolius, Festuca versicolor, Thymus pulcherrimus, Festuca rupicola subsp. saxatilis, Aster alpinus
Area: rare: E3 (Nagyhagymás, Egyeskő, Terkő); E4-F2 (Péter, Hegyes, Szellő)

Seslerion rigidae Zólyomi 1939

Helictotrichetum decori Domin 1932
(Syn.: Festuca glauca-Avenastrum decorum ass. Soó 1944)
Ecol.: montane-subalpine rocky places
Flor.: Helictotrichon decorum, Festuca pallens, Carex humilis, Dianthus spiculifolius, Aster alpinus, Kernera saxatilis
Area: rare (E3)

Festuco saxatilis-Seslerietum heuflerianae Soó 1944
[Syn.: Festuca saxatilis-Sesleria heufleriana ass. Soó 1944; Seslerietum heuflerianae siculum Soó 1944 (art. 34); Seslerio heuflerianae-Caricetum sempervirentis Coldea 1984 p.p]
Ecol.: montane-subalpine calcareous rocky places, rubbles
Flor. Sesleria heufleriana, Festuca rupicola subsp. saxatilis, Ranunculus oreophilus, Helianthemum alpestre, Carex sempervirens, Gentiana phlogifolia, Iris ruthenica
Area: rare (E3)

Seslerio bielzii-Caricetum sempervirentis Puşcaru et al. 1956
[Syn.: Seslerietum bielzii transsilvanicum Borhidi 1958 (art. 34)]
Ecol.: calcareous rocky places, ledges
Flor.: Carex sempervirens, Sesleria bielzii, Dianthus spiculifolius, Anthyllis vulneraria subsp. alpestris, Bupleurum diversifolium, Cerastium arvense
Area: rare (E3)

MULGEDIO-ACONITETEA Hadač et Klika in Klika et Hadač 1944
[Syn.: Betulo-Adenostyletea Br.-Bl. et R. Tx. 1943 (art. 8)]
(Tall-herb and scrub montane vegetation, moistened and fertilized by percolating water)
ADENOSTYLETALIA G. Br.-Bl. et J. Br.-Bl. 1931
Adenostylion alliariae Br.-Bl. 1926
Alnetum viridis Br.-Bl. 1918
[Syn.: Salici-Alnetum viridis Colic et al. 1962 p. p., Alnetum viridis transsilvanicum Soó (1935) 1944 (art. 34)]
Ecol.: montane humid valleys, eroded slopes, rocky places of the subalpine green alder
Flor.: Alnus viridis, Salix silesiaca, S.cinerea, Sorbus aucuparia, Calamagrostis arundinacea
Area: sporadic (F3, I1)
Adenostylo-Doronicetum austriaci Horv. 1956
Ecol.: wet places, humid soils in montane valleys
Flor.: Doronicum austriacum, Adenostyles alliariae, Cherophyllum hirsutum, Achillea distans, Viola biflora, Valeriana sambucifolia
Area: sporadic (E3)
Polemonio coerulei-Carduetum personatae M. Sămărghitan 2000
Ecol.: slopes, places with humic accumulations
Flor.: Cirsium waldsteinii, Geum rivale, Doronicum austriacum, Valeriana sambucifolia, Hypericum maculatum, Aconitum paniculatum (Deschampsia caespitosa)
Area: rare (D3) (insufficiently studied)
Calamagrostion villosae Pawl. et al. 1928
[Syn.: Phleo alpini-Deschampsion Csűrös et al. 1985 (art. 25)]
Phleo alpini-Deschampsietum caespitosae (Krajina 1933) Coldea 1983
[Syn.: Deschampsietum caespitosae alpinum Csűrös et al. 1954 (art. 34)]
Ecol.: mountainous-subalpine sites, wet places, marshes
Flor.: Deschampsia ceaspitosa, Phleum alpinum, Veratrum album, Geum montanum, Campanula abietina
Area: locally frequent in the boreal and subalpine belt
Diantho compacti-Festucetum porcii A. Nyárády 1966
[Syn.: Calamagrostidetum arundinaceae subalpinum Csűrös et al. 1962 (art. 34)]
Ecol.: mountainous rocky places
Flor.: Festuca porcii, Dianthus compactus, Calamagrostis arundinacea, Achillea distans, Knautia longifolia, Adenostyles alliariae
Area: rare (E3)
Rumicion alpini Rübel ex Klika in Klika et Hadač 1944
[Syn.: Rumicion alpini Rübel 1933 (art. 8)]

Rumicetum alpini Beger1922
[Syn.: Rumicetum alpini carpaticum Szafer et al. 1925 (art. 34)]
Ecol.: mountane-subalpine nitrophilous lands, damp pastures
Flor.: Rumex alpinus, Veratrum album, Geum montanum, Deschampsia caespitosa, Senecio subalpinus, Poa supina
Area: frequent (D1, D2, D3, D4, D6, E2, E3, F2, F3, G2, I1)

TEMPERATE GRASSLANDS AND HEATHLANDS

MOLINIO-ARRHENATHERETEA R. Tx. 1937
(Nutrient-rich, mesic pastures, hay meadows, lawns and wet grasslands)
MOLINIETALIA Koch 1926
Molinion coeruleae Koch 1926
Molinio-Salicetum rosmarinifoliae Magyar ex Soó 1933
Ecol.: fen meadows, wet places, peaty soils
Flor.: Salix repens subsp. rosmarinifolia, Molinia coerulea agg.
Area: sporadic (J4)
Junco-Molinietum coeruleae (s. l.) Preising in R. Tx. et Preising ex Klapp 1954
[Syn.: Molinietum coeruleae Koch 1926 (art. 36), Potentillo erectae-Molinietum Resmerița 1963 (art. 2b, 7)]
Ecol.: fen meadows, wet unmanured meadows, wet places, swamp-peaty soils
Flor.: Molinia coerulea agg., Juncus conglomeratus, Achilllea ptarmica, Potentilla erecta, Serratula tinctoria, Carex panicea, Succisa pratensis, Gentiana pneumonanthe
Area: sporadic, locally frequent (CA, C2, D3, D6, J3, J4, F3, I1)
Filipendulion W. Koch 1926
Chaerophyllo hirsuti-Filipenduletum Niemann et al. 1973
Ecol.: montane streamsides, wet and shadow habitats
Flor.: Filipendula ulmaria, Chaerophyllum hirsutum, Valeriana sambucifolia, Veratrum album
Area: rare (D2, D4)
Filipendulo ulmariae-Geranietum palustris Koch 1926
(Syn.: Filipendulietum ulmariae Passarge 1964)
Ecol.: damp places, river banks, margin of fens
Flor.: Filipendula ulmaria, Geranium palustre, Carex acutiformis, Achillea ptarmica
Area:frequent (D2, D4, G2, J3, J4, J6)
Lysimachio vulgaris-Filipenduletum Bal.-Tul. 1978
Ecol.: wet places, damp fields

Flor.: Filipendula ulmaria, Lysimachia vulgaris, Lythrum salicaria
Area: frequent (D2, D4, J3, J4, J6)
Note: Several semi-natural communities from the all. Petasition (Galio-Urticetea) probably can be included also here instead of the synanthropic units.

Calthion R. Tx. 1937

Angelico-Cirsietum oleracei R. Tx. 1937
Ecol.: wet meadows, shadow places, fringes of forests
Flor.: Angelica sylvestris, Cirsium oleraceum, Chaerophyllum hirsutum, Chaerophyllum aromaticum
Area: sporadic (C1, C2, C3, D3, D4)

Cirsietum rivularis Nowinski 1928
Ecol.: wet meadows, damp valleys, fens
Flor.: Cirsium rivulare, Equisetum palustre, Epilobium hirsutum, Scirpus sylvaticus, Caltha palustris, Filipendula ulmaria
Area: sporadic (B3, CA, D2, J3, J4)

Scirpetum sylvatici Ralski 1931
Ecol.: damp meadows, river banks
Flor.: Scirpus sylvaticus, Caltha palustris, Myosotis scorpioides, Equisetum palustre
Area: frequent (C1, C2, D2, D4, E3, F2, F3, G2, J3, J4, J1, J2, J5, J6)

Caricetum caespitosae Klika et Smarda 1941
Ecol.: wet and fen meadows, streamsides
Flor.: Caltha palustris, Persicaria bistorta, , Myosotis palustris, Scirpus sylvaticus
Area: sporadic (G3)

Scirpo-Cirsietum cani Bal.-Tul. 1973
Ecol.: fen meadows, wet places
Flor.: Cirsium canum, Scirpus sylvaticus
Area: sporadic (C1, C2)

Deschampsion caespitosae Horvatić1930 em. Soó 1941
(Syn.: Agrostion albae Soó 1933 p.p.)

Leucanthemo-Agrostenion stoloniferae (Soó 1933) Borhidi 2003
[Syn.: Agrostenion albae (Soó 1933) Kovács M. 1975 sub Agrostion albae, Agrostenion albae Borhidi 2001]

Agrostetum albae M. Kovács 1955
[Syn. Agrostetum albae Ujvárosi 1941 (nomen inval. art. 2b, 7); Agrostetum albae Burduja et al. 1956; Agrostio-Poëtum trivialis Soó 1938 (art. 2b, 36)]
Ecol.: damp grasslands, wet places
Flor.: Agrostis stolonifera, Poa trivialis, P. pratensis, Deschampsia caespitosa
Area: frequent alongside the rivers

Agrostio-Phalaridetum (Ujvárosi 1947) Soó 1971
Ecol.: wet meadows, damp places, depressions, flooding areas

Flor.: Phalaris arundinacea, Agrostis stolonifera, Gratiola officinalis, Triglochin palustre
Area: frequent, alongside the rivers (A2, B3, G2, J3, J4, J6)

Cirsio cani-Festucetum pratensis Májovsky et Ružičková 1975
(Syn.: Festucetum pratensis Soó 1938)
Ecol.: wet meadows, rich moist soils
Flor.: Festuca pratensis, Cirsium canum, Poa trivialis, Holcus lanatus, Bromus mollis
Area: frequent (C1, C2, C3, E3, G2, J3, J4, J5, J6)

Alopecurenion albae (Passarge 1964) Borhidi 2001
[Syn.: Alopecurenion pratensis (Passarge 1964) Soó 1971 sub Agrostion albae]

Carici vulpinae-Alopecuretum pratensis (Máthé et Kovács M. 1967) Soó 1971 corr. Borhidi 1996
[Syn.: Alopecuretum pratensis Regel 1925 s. l., Nowinski 1928 (art. 36), Carici-Alopecuretum pratensis Soó 1971 (art. 3), Ranunculo repentis-Alopecuretum pratensis Ellmauer 1993 p.p.]
Ecol.: wet meadows, damp places
Flor.: Alopecurus pratensis, Carex vulpina, C. hirta, Lathyrus pratensis, Lychnis flos-cuculi
Area: frequent (B2, B3, C2, C3, D2, G2, J3, J4, J5, J6)

Deschampsenion caespitosae (Horvatić 1930) Borhidi 2001

Agrostio-Deschampsietum caespitosae Ujvárosi 1947
(Syn..: Agrostideto-Deschampsietum Soó 1944)
Ecol.: damp grasslands, wet places
Flor.: Deschampsia ceaspitosa, Agrostis stolonifera, Succisella inflexa, Ranunculus repens, Inula salicina, Carex panicea, Plantago altissima
Area: frequent (B2, B3, C1, C2, E3, F2, G2, J3, J4, J6)

ARRHENATHERETALIA R. Tx. 1931
Arrhenatherion elatioris Koch 1926

Pastinaco-Arrhenatheretum (Knapp 1954) Passarge 1964
(Syn.: Arrhenatheretum elatioris Br.-Bl. 1919 s.l.)
Ecol.: meadows of well drained, fertile soils of lower altitudes
Flor.: Arrhenatherum elatius, Dactylis glomerata, Avenula pubescens, Pastinaca sativa, Campanula patula, Geranium pratense, Crepis biennis, Tragopogon orientale
Area: frequent (B2, B3, C1, C2, C3, E3, G2, G3, J3, J4, J6)

Alopecuro-Arrhenatheretum (Máthé et Kovács 1960) Soó 1971
Ecol.: wet meadows, damp rich soils
Flor.: Arrhenatherum elatius, Alopecurus pratensis, Sanguisorba officinalis, Geranium pratense
Area: sporadic (D2, J3, J4, J6)

Poo-Trisetetum flavescentis Knapp ex Oberd. 1957
Ecol.: montane meadows on fertile soils
Flor.: Poa pratensis, Trisetum flavescens, Centaurea melanocalathia
Area: sporadic (D2, D3, D4, E3, E4, F2, G2)

Cynosurion cristati R. Tx. 1947

Lolio-Cynosuretum R. Tx. 1937
Ecol.: mesotrophic grasslands on fertile soils
Flor.: Lolium perenne, Cynosurus cristatus, Festuca rubra
Area: frequent (B2, B3, C2, C3, G2, G3, H1)

Trifolio repenti-Lolietum Krippelová 1967
(Syn.: Lolio-Trifolietum repentis Resmeriţa, Spîrchez et Csűrös 1967)
Ecol.: fertile pastures, rich soils on rivers walley
Flor.: Trifolium repens, Lolium perenne, Lotus corniculatus
Area: frequent (A1, B3, B4, C2, C3, G3, J6)

Festuco rubrae-Agrostietum M. Csűrös-Káptalan 1964
Ecol.: mesic, moderat humid sites, grasslands on the hilly and mountainous region
Flor.: Agrostis capillaris, Festuca rubra, Anthoxanthum odoratum, Trifolium montanum
Area: common, mostly in the hilly region

Agrosti-Festucetum rubrae Csűrös et Resmeriţa 1960
Ecol.: mountainous grasslands on acid and oligomesobasic soils
Flor.: Festuca rubra, Agrostis capillaris, Centaurea melanocalathia, Achillea distans, Hieracium aurantiacum, Hypericum maculatum
Area: common, mostly in the mountains

Festuco rubrae-Deschampsietum F. Raţiu et Gergely 1978
Ecol.: mountainous damp grasslands, wet places, mountain depressions
Flor.: Festuca rubra, Deschampsia caespitosa, Nardus stricta, Juncus effusus, J. articulatus, Veratrum album, Potentilla erecta
Area: frequent (D3, D4, D6, F2, F3, G2, J1, J2, J3, J4, J4, J6)
Note: The mountainous grasslands dominated by coenoses of Deschampsia caespitosa can not be included in to the alliance of „Deschampsion" or in „Clamagrostion villosae", they show several transition and presents more coenological relations with the grasslands of „Potentillion anserinae".

Polygono-Trisetion Br.-Bl. et Tx. ex Marschall 1947 nom. inv.
[Syn.: Triseto-Polygonion Br.-Bl. et Tx. 1943 (art. 2b.)]

Geranio sylvatici-Trisetetum Knapp ex Oberd. 1957
(Syn.: Trisetetum flavescentis Rübel 1911 s. l.)
Ecol.: mountain hay meadows
Flor.: Geranium sylvaticum, Trisetum flavescens, Alchemilla monticola, Centaurea pseudophrygia, Polygonum bistorta
Area: sporadic (D1, F3)

POTENTILLO-POLYGONETALIA R. Tx. 1947
Potentillion anserinae R. Tx. 1937
[Syn.: Agrostion stoloniferae Görs in Oberd. et al. 1967 (art. 29, 31, 36) non Agropyro-Rumicion crispi Nordhagen 1940 (art. 36)]

Dactylido-Festucetum arundinaceae R. Tx. ex Lohmeyer 1953
Ecol.: wet places, flooding area of rivers
Flor.: Festuca arundinacea, Dactylis glomerata, Trifolium repens
Area: sporadic (B2, C2, C3, J6)

Potentilletum anserinae Felföldy 1942
[Syn.: Lolio-Potentilletum anserinae Knapp 1946 (art. 2b)]
Ecol.: damp and waste places
Flor.: Potentilla anserina, Lolium perenne, Juncus inflexus, Trifolium fragiferum, Poa annua
Area: common in disturbed pastures

Ranunculetum repentis Knapp ex Oberd. 1957
Ecol.: damp places, wet grasslands
Flor.: Ranunculus repens, Rorippa sylvestris, Inula britannica, Mentha pulegium
Area: frequent in disturbed pastures

Ranunculo repentis-Alopecuretum geniculati R. Tx. 1937
Ecol.: wet places, small depressions
Flor.: Ranunculus repens, Alopecurus geniculatus, Agrostis stolonifera, Rumex crispus
Area: sporadic in wetlands

Agropyro repentis-Rorippetum austriacae (Timár 1947) R. Tx. 1950
Ecol.: wet places, damp grasslands, river banks
Flor.: Elytrigia (Agropyron) repens, Rorippa austriaca, R. sylvestris
Area: frequent in wetlands

Rumici crispi-Agrostietum stoloniferae Moor 1958
Ecol.: wet places, flooding areas
Flor.: Rumex crispus, Agrostis stolonifera, Mentha pulegium, Potentilla reptans, P. anserina
Area: frequent in flood-basins

Lythro-Calamagrostietum epigei I. Pop 1968
Ecol.: riverbanks, flood plains, wet fields and ponds
Flor.: Calamagrostis epegeios, Lythrum salicaria, Epilobium hirsutum
Area: frequent, mostly near the streamsides

Juncetum effusi Soó (1931) 1949
Ecol.: wet and damp places mostly on acid soils
Flor.: Juncus effusus, J. conglomeratus, Ranunculus repens, Mentha aquatica
Area: frequent in the submontane region

Juncetum tenuis (Diemont et al. 1940) R. Tx. 1950
Ecol.: damp and shaded places, forest glades

Flor.: Juncus tenuis, Poa annua, Prunella vulgaris
Area: frequent

Junco inflexi-Menthetum longifoliae Lohmeyer 1953
Ecol.: marshes, ditches, wet fields and ponds
Flor.: Mentha longifolia, Juncus inflexus, Holcus lanatus
Area: common

CALLUNO-ULICETEA Br.-Bl. et R. Tx. ex Westhoff et al. 1946
(Temperate and boreal grasslands and heathlands on nutrient-poor soils)
NARDETALIA Oberd. ex Preising 1949
Violion caninae Schwickerath 1944

Hieracio pilosellae-Nardetum strictae I. Pop et al. 1990
[Syn.: Xeronardetum Soó 1931; Festuco-Nardetum strictae montanum Csűrös et Resm. 1960 (art. 34); Polygalo vulgaris-Nardetum Oberd. 1957 p.p.]
Ecol.: hilly-montane grassy swards on poor acid soils
Flor.: Nardus stricta, Festuca rubra, Polygala vulgaris, Viola canina, Hieracium pilosella Antennaria dioica
Area: common, locally frequent (C1, C2, D6, F2, F3, G2, J1, J2, J3, J4)

Carici-Nardetum strictae Resmerița et Pop 1986
(Syn.: Hygronardetum strictae Borza 1934)
Ecol.: wet places, montane sites on gleyic soils
Flor.: Nardus stricta, Festuca rubra, Carex leporina, C. flava, Potentilla ternata
Area: frequent (C1, C2, C3, D3, D4, D6, E2, G2, F2, F3, J3, J4, J5, J6)

Scorzonero roseae-Festucetum nigricantis (Puşcaru et al. 1956) Coldea 1987
[Syn.: Festucetum rubrae montanum Csűrös et Resmerița 1960 (art. 34)]
Ecol.: montane grasslands on poor acid soils
Flor.: Festuca nigrescens, Nardus stricta, Hieracium aurantiacum, Scorzonera rosea, Campanula abietina
Area: common, locally frequent (C2, D3, D4, D6, E1, E2, E3, E4, F2, F3, G2, G3, I1)

Junipero communis-Nardetum Al. Kovács et Csürös 1977 ex Al. Kovács 1981
Ecol.: grassy swards with juniper bushes on acid soils
Flor.: Veronica officinalis, Luzula luzuloides, Nardus stricta, Juniperus communis, Betula pendula, Vaccinium myrtillus
Area: sporadic (G2, F3)
Note: Probabily it is a succesional stage from the grasslands to bushes and woods (Violion caninae, Luzulo-Fagion, Hieracio-Quercion).

Festuco-Genistetum sagittalis Issler 1927
Ecol.: border of forests, open woodlands
Flor.: Festuca rubra, Genista sagittalis, Nardus stricta, Antennaria dioica
Area: sporadic (D4, D6, F2, F3)

Nardion strictae Br.-Bl. in Br.-Bl. et Jenny 1926

Violo declinatae-Nardetum strictae Simon 1966

[Syn.: Nardetum strictae subalpinum Buia et al. 1962; Nardetum strictae alpinum Buia et al. 1962 (art. 34)]

Ecol.: chionophilous grassy swards on acid soils in the montane-subalpine belt

Flor.: Nardus stricta, Viola declinata, Campanula abietina, Poa media

Area: frequent in the subalpine-alpine belt (D3, D4, D6, E3, F1, F2, F3, I1, J1, J2)

Note: In the new approach of the chionophilous grassy swards the subalpine-alpine Nardus-pastures (Nardion strictae for the Alps and Carpathians and the Potentillo ternatae-Nardion for the mountains of the eastern Balkans) are included in the ord. Caricetalia curvulae, class. Juncetea trifidi.

Dry grasslands of subcontinental temperate regions

FESTUCO-BROMETEA Br.-Bl. et R. Tx. ex Klika et Hadač 1944

(Rocky steppes, steppes and continental sandy grasslands of the temperate and subboreal regions)

STIPO PULCHERRIMAE-FESTUCETALIA PALLENTIS Pop 1968

Seslerio-Festucion pallentis Klika 1931

Asplenio rutae-murariae-Melicetum ciliatae Soó 1962

Ecol.: calcareous rocky places

Flor.: Melica ciliata, Asplenium ruta-muraria, Jovibarba hirta

Area: sporadic (E3, H2)

Helictotricho decori-Festucetum pallentis (Soó 1944) Gergely 1972

(Syn.: Festuca glauca-Avenastrum decorum ass. Soó 1944)

Ecol.: calcareous rocky places

Flor.. Festuca pallens, Helictotrichum decorum, Carex humilis, Biscutella laevigata, Saxifraga paniculata, Campanula sibirica

Area: rare (C3, E3, H2)

Thymo comosi-Festucion rupicolae Pop 1968

Thymo comosi-Festucetum rupicolae (Csürös et Gergely 1959) Pop et Hodişan 1985

[Syn.: Festucetum sulcatae calcophilum Csűrös et Gergely 1959, Festucetum rupicolae montanum Beldie 1967 (art. 34)]

Ecol.: rocky and stony places, rendzina soils

Flor.:Festuca rupicola, Thymus comosus, Potentilla arenaria, Acinos arvensis, Helianthemum nummularium, Allium senescens subsp. montanum

Area: sporadic (B4, C3, D2, H2)

Thymo comosi-Caricetum humilis (Zólyomi 1939) Morariu et Danciu 1974

[Syn. Caricetum humilis transsilvanicum Zólyomi 1939 (art. 34)]

Ecol.: dry sites, stony places, rendzinas

Flor.: Carex humilis, Thymus comosus, Festuca pallens, Teucrium montanum, Allium flavum, Sedum album
Area: sporadic (D2, E3, G3)

Carici humilis-Stipetum joannis Pop et Hodişan 1985
Ecol.: dry grasslands
Flor.: Carex humilis, Stipa joannis, Veronica austriaca
Area: sporadic (B4)

Melico ciliatae-Stipetum pulcherrimae Pop et Hodişan 1985
Ecol.: dry rocky grasslands
Flor.: Stipa pulcherrima, Melica ciliata, Hieracium bupleuroides
Area: sporadic (B3, B4)

Melico-Phleetum montani Gergely et al. 1967
Ecol.: dry rocky and stony places
Flor.: Melica ciliata, Phleum montanum, Agropyron intermedium
Area: sporadic (B3, B4, H2)

FESTUCETALIA VALESIACAE Br.-Bl. et R. Tx. ex Br.-Bl. 1949
Festucion rupicolae Soó 1940 corr. 1964
(Syn.: Festucion sulcatae Soó 1929)

Stipetum capillatae (Hueck 1931) Krausch 1961
Ecol.: sunny slopes, dry sites
Flor.: Stipa capillata, Festuca rupicola, Anthericum ramosum
Area: sporadic (A1, B2, B3, B4, C2, C3)

Cariceto humilis-Festucetum rupicolae Soó 1947 corr. Kovács 2002
Ecol.: dry habitats, sunny slopes
Flor.: Festuca rupicola, Carex humilis, Jurinea mollis, Astragalus austriacus
Area: sporadic (A1, B2, B3, B4)

Cleistogeni-Festucetum rupicolae Zólyomi 1958
Ecol.: dry slopes, ridges mainly on calcareous and marly substrata
Flor.: Festuca rupicola, Cleistogenes serotina, Bothriochloa ischaemum, Chamaecytisus austriacus, Stachys recta
Area: sporadic (A1, B3, G3, J6)

Agrosti-Festucetum rupicolae M. Csürös-Káptalan 1964 (nom. mut. propos.)
(Syn.: Agrosti-Festucetum sulcatae M. Csürös-Káptalan 1964, 1971)
Ecol.: dry grasslands on the hilly area
Flor.: Agrostis capillaris, Festuca rupicola, Medicago falcata, Pulsatilla montana, Veronica orchidea
Area: common (A1, A2, B1, B2, B3, B4, CA, C1, C2, C3, D2, G2, G3, H1, H2, J3, J6)

Bothriochloetum ischaemi (Krist 1937) I. Pop 1977
Ecol.: degradated slopes, dry grasslands
Flor.: Bothriochloa ischaemum, Artemisia campestris, Thymus pannonicus

Area: sporadic (A1, B2, B3, B4, C1, C2, C3, G2, G3, H2, J6).

Helianthemo cani-Festucetum valesiacae Soó 1944 corr. hoc loco

(Syn.: Festuca valesiaca ass. Soó 1944, ch sp. Helianthemum canum)

Ecol.: sunny slopes, basic rocks and stony places

Flor.: Festuca valesiaca, Helianthemum canum, Phleum montanum, Potentilla arenaria

Area: sporadic (C2, C3, G3)

Potentillo arenariae-Festucetum pseudovinae Soó (1938) 1940

[Syn.: Festucetum pseudovinae potentilletosum arenariae Soó 1938; Festucetum pseudovinae Bojko 1931 (art. 2b, 36)]

Ecol.: degradated habitats on sandy and stony soils

Flor.: Festuca pseudovina, Potentilla areanaria, Koeleria gracilis, Poa bulbosa

Area: sporadic (J6) Rétyi Nyír (Reci), Perkö-Kézdiszentlélek (Sânzieni)

Artemisietum ponticae-sericeae Soó (1927) 1942

Ecol.: eroded slopes, sunny places

Flor.: Artemisia pontica, Diplachne serotina, Artemisia campestris, Asyneuma canescens, Elymus hispidus

Area: sporadic (A1, B3, B4)

Note: Other dry grassland communities like Medicagini-Festucetum valesiacae Wagner 1941 or Agrosti-Festucetum valesiacae Borisavljevic et al. 1955, are frequently cited but after the original diagnoses they cannot be present in the studied area (Kovács J. A. 2002ab).

BROMETALIA ERECTI Br.-Bl. 1936

Bromion erecti Br.-Bl. 1936

Onobrychido viciaefoliae-Brometum erecti T. Müller 1966

(Syn.: Brometum erecti Scherer 1925 s.l.)

Ecol.: dry grasslands on base-rich soils

Flor.: Bromus erectus, Onobrychis viciaefolia, Coronilla varia, Carex ontana, Anthyllis vulneraria

Area: sporadic (A1, B2, B3, B4, C2, C3)

Cirsio pannonici-Brachypodion pinnati Hadač et Klika in Hadač et Klika 1944

Cariceto humilis-Brachypodietum pinnati Soó 1947

Ecol.: mesic-dry hilly habitats on soft easily sliding marly and sandy soils

Flor.: Brachypodium rupestre, Carex humilis, Securigera varia, Astragalus monspessulanus, Jurinea mollis, Onobrychis viciifolia

Area: locally frequent (A1, A2, B1, B2, B3, B4, C1, C2, C3, G2, G3)

Dorycnio herbacei-Seslerietum heuflerianae A. J. Kovács (1994) 2003

Ecol.: abrupt and easily sliding slopes, ridges, marly places of hills

Flor.: Sesleria heufleriana, Dorycnium herbaceum, Cephalaria radiata, Linum hirsutum

Area: locally frequent (B3, B4, C1, C2)

Danthonio alpinae-Brachypodion pinnati Boşcaiu 1970

Festuco rupicolae-Danthonietum Csűrös et al. 1961

Ecol.: moderate slopes, small plateaux, ridge of hills

Flor: Danthonia alpina, Festuca rupicola, Astragalus monspessulanus, Pseudolysimachion spicatum, Chamaecytisus albus

Area: locally frequent (B2, B3, C1, C2)

Festuco rubrae-Danthonietum Csűrös et al. 1968

Ecol.: ridges of hills, plateaux, slopes with warmsoils

Flor.: Festuca rubra, Danthonia alpina, Potentilla alba, Inula salicina, Ferulago sylvatica

Area: locally frequent (B3, C1, C2, C3, J4)

Danthonio-Brachypodietum pinnati Soó 1947

Ecol.: slighty slopes, sunny places

Flor.: Brachypodium rupestre, Danthonia alpina, Festuca rupicola, Aster linosyris, Peucedanum cervaria

Area: sporadic; locally frequent (B1, B3, CA, C2)

Continental alkali vegetation

THERO-SUAEDETEA Vicherek 1973 em. Borhidi 2003

(Salt-marsh vegetation of continental short lived succulents and saline wet meadows)

CHAMPHOROSMO-SALICORNIETALIA Borhidi 1996

Salicornion prostratae Soó 1933 corr. Borhidi 1996

[Syn.: Salicornion herbaceae Soó 1933 (art. 43)]

Salicornietum prostratae Soó 1947 corr. 1964

[Syn.: Salicornietum herbaceae Soó 1927 (art. 36); Salicornietum europeae auct. (art. 34, 36)]

Ecol.: salt pans, bottom of drying salty lakes and mud

Flor.: Salicornia prostrata, Spergularia salina, Puccinellia limosa, Crypsis aculeata

Area: sporadic (CA, C3)

CRYPSIDETALIA ACULEATAE Vicherek 1973

Cypero-Spergularion salinae Slavnic 1948

Atriplicetum prostratae Wenzl 1934 corr. Gutermann et Mucina 1993

Ecol.: salty mud, bottom of lakes

Flor.: Atriplex prostrata, Aster tripolium

Area: sporadic (C3)

Chenopodietum urbici Soó 1947

Ecol.: moderate salty sites

Flor.: Chenopodium urbicum, Polygonum arenastrum

Area: sporadic (C3)

FESTUCO-PUCCINELLIETEA Soó 1968 em. Borhidi 2003
(Continental salt-marshes, salt-pans and salt-grasslands in eastern Europe)
FESTUCO-PUCCINELLIETALIA Soó 1968
Puccinellion limosae Soó 1933
Puccinellietum limosae Magyar ex Soó 1933
Ecol.: moist salt pans, salty soils and wet sites
Flor.: Puccinellia limosa, Aster tripolium subsp. pannonicus, Plantago maritima, Limonium gmelini, Lotus tenuis
Area: sporadic (A1, CA, C2, C3)

SCORZONERO-JUNCETALIA GERARDII Vicherec 1973
Scorzonero-Juncion gerardii (Wendelberg. 1943) Vicherec 1973
Triglochineto palustris-Asteretum pannonici Sanda et Popescu 1979
Ecol: wet salty places
Flor.: Aster tripolium subsp. pannonicus, Triglochin palustre, Puccinellia limosa
Area: rare (CA, C2, C3)
Scorzonero parviflorae-Juncetum gerardi (Wenzl 1934) Wendelberg. 1943
Ecol.: moist salt pans, wet places
Flor.: Juncus gerardi, Scorzonera parviflora, Agrostis stolonifera, Eleocharis palustris
Area: rare (CA, C3)
Agrostio-Caricetum distantis Rapaics ex Soó 1938
Ecol.: wet and salty places near the mineral water souces
Flor.: Scorzonera parviflora, Agrostis stolonifera, Carex distans, Juncus gerardi
Area: sporadic (G1, G2)

ARTEMISIO-FESTUCETALIA PSEUDOVINAE Soó 1968
Festucion pseudovinae Soó 1933
Artemisio-Festucetum pseudovinae Soó in Máthé 1933 corr. Borhidi 1996
(Syn.: Artemisietum salinae Soó 1927)
Ecol.: grasslands on salty soils
Flor.: Artemisia santonicum subsp. monogyna, Festuca pseudovina, Puccinellia limosa, Gypsophila muralis, Limonium gmelini
Area: sporadic (C3)

Fringe vegetation of woodland margins
TRIFOLIO-GERANIETEA SANGUINEI T. Müller 1962
(Herbaceous vegetation of woodland margins)
ORIGANETALIA VULGARIS T. Müller 1961
Geranion sanguinei R. Tx. in T. Müller 1961

Galio-Dictamnetum Gils et Kovács 1977
Ecol.: woodland margins, sunny places
Flor.: Galium glaucum, Dictamnus albus, Clematis recta, Inula hirta
Area: sporadic (A2, B3, B4, H2)
Inulo ensifoliae-Peucedanetum cervariae Kozlowska 1925 em. Van Gils et Kovács 1977
[Syn.: Geranio-Peucedanietum cervariae (Kuhn 1937) T. Müller 1961 (art. 29)]
Ecol.: sunny steep slopes, ridges of hills, basic soils mainly in SW exposition
Flor.: Inula ensifolia, Peucedanum cervaria, Artemisia pontica, Aster linosyris, Thalictrum minus
Area: sporadic, locally frequent (A2, B2, B3, B4)
Clematido recti-Laserpitietum latifolii Schneider-Binder 1984
Ecol.: shadow of shrubs and forests, N, NE slopes
Flor.: Laserpitium latifolium, Clematis recta, Polygonatum odoratum, Anthericum ramosum, Peucedanum oreoselinum
Area: sporadic (B1, B2, B3, C1, C2, E2, H1)
Trifolion medii T. Müller 1961
Trifolio medii-Agrimonietum T. Müller 1962
[Syn.: Origano-Agrimonietum Kovács Al. (1979) 1981]
Ecol.: border of mesic forests
Flor.: Agrimonia eupatoria, Trifolium medium, Achillea millefolium, Origanum vulgare, Centaurea jacea
Area: sporadic (C2, C3, G2, H2)
Stachyo-Melampyretum bihariensis Coldea et Pop 1992
Ecol.: borders of oak-hornbeam tree forests, mesic fringes
Flor.: Melampyrum bihariense, Stachys officinalis, Inula bifrons, Agrostis capillaris, Vincetoxicum officinale
Area: frequent (B1, B2, B3, C1, C2, C3, G3, H1, H2)

SYNANTHROPIC VEGETATION

Weed communities
STELLARIETEA MEDIAE R. Tx., Lohm. et Prsg. ex von Rochow 1951
(Weed communities of arable crops, gardens and waste places)
PAPAVERETALIA RHOEADIS Hüppe et Hofmeister 1990
(Syn.: Centauretalia cyani R. Tx., Lohm. et Prsg. In R. Tx. 1950 p.p.)
Caucalion platycarpi (R. Tx. 1950) ex von Rochow 1951
Stachyo annuae-Setarietum pumilae Felföldy 1942 corr. Mucina 1993
[Syn.: Stachyo annuae-Setarietum glaucae Felföldy 1942 (art. 43); Stachyetum annuae Soó 1932 (art. 36)]

Ecol.: cultivated stubble fields, fixed soils
Flor.: Setaria pumila, Stachys annua, Oxalis europea, Consolida regalis, Anagallis arvensis
Area: frequent especially in the Transylvanian Plain (A1, A2, B1, B2, B3, B4, C1, C2, C3)

Echinochloo-Setarietum pumilae Felföldy 1942 corr. Mucina 1993
[Syn.: Echinochloo-Setarietum glaucae Felföldy 1942 (art. 43)]
Ecol.: cultivated arable lands
Flor.: Echinochloa crus-galli, Setaria pumila, Amaranthus retroflexus, Galingsoga parviflora
Area: frequent (A1, A2, B1, B2, B3, B4, C1, C2, C3)

Veronico-Euphorbion Sissingh ex Passarge 1964

Veronicetum trilobae-triphyllidi Slavnic 1951
Ecol.: base-rich soils of sunny slopes, vineyards and orchards
Flor.: Veronica hederifolia agg., V. triphyllos, V. polita, Lamium amplexicaule
Area: sporadic (A1, A2, B1, B2, B3)

SPERGULETALIA ARVENSIS Hüppe et Hofmeister 1990
[Syn.: Chenopodietalia sensu Mucina 1993 (art. 36)]

Scleranthion annui (Kruseman et Vlieger 1939) Sissingh in Westhoff et al. 1946

Scleranthо-Trifolietum arvensis Morariu 1943
Ecol.: cultivated ground, stubble fields
Flor.: Scleranthus annuus, Trifolium arvense, Spergula arvensis, Centaurea cyanus
Area: sporadic (J3, J4, J5, J6)

Spergulo-Aperetum spicae-venti Soó (1953) 1962
Ecol.: cultivated field, acid-sandy soils
Flor.: Apera spica-venti, Spergula arvensis, Anthemis ruthenica
Area: locally frequent (J4, J5, J6)

Setario pumilae-Digitarietum sanguinalis Felföldy 1942 corr. Borhidi 1996
Ecol: cultivated ground, sandy soils
Flor.: Digitaria sanguinalis, Setaria pumila, Eragrostis minor
Area: sporadic (B1, B2, B3, B4, C2, C3)

LOLIO REMOTI-LINETALIA J. Tx. et R. Tx. in Lohmeyer et al. 1962

Lolio remoti-Linion R. Tx. 1950

Lolio temulenti-Linetum usitatissimi Timár 1952
Ecol.: cultivated grounds, flax fields
Flor.: Lolium temulentum, Lathyrus aphaca
Area: sporadic (C2, F2, J3, J4)

ERAGROSTETALIA J. Tx. ex Poli 1966
Amarantho-Chenopodion albi Morariu 1943
[Syn.: Consolido-Eragrostion minoris Soó et Timár 1957 (art. 29.)]
Amarantho-Chenopodietum albi (Morariu 1943) Soó 1947
Ecol.: arable lands and gardens
Flor.: Amaranthus retroflexus, Chenopodium album, Galingsoga parviflora, Solanum nigrum
Area: common
Convolvulo-Portulacetum Ubrizsy 1949
Ecol.: cultivated fields, gardens, vineyards
Flor.: Portulaca oleracea, Convolvulus arvensis, Stellaria media, Lamium aplexicaule
Area: sporadic (B2, B3)
Lolio-Cynodontetum dactylidi Jarolímek et al. 1997
[Syn.: Cynodon dactylon ass. Felföldy 1942 (art. 36)]
Ecol.: margins of fieldways, alongside the pathways and roads
Flor. Cynodon dactylon, Eragrostis minor, Lolium perenne
Area: sporadic (A1, B4)
SISYMBRIETALIA J. Tx. in Lohm. et al 1962
Sisymbrion officinalis R. Tx. Lohm. et Prsg. ex von Rochow 1951
Hordeetum murini Libbert 1938
Ecol.: alongside roads, waste and rough ground
Flor.: Hordeetum murinum, Chenopodium album, Sisymbrium officinale
Area: frequent as small stands
Erigeronto-Lactucetum serriolae Lohm. in Oberd. 1957
Ecol.: uncultivated arable lands,
Flor.: Conyza canadensis, Lactuca serriola, Erigeron annuus, Apera spica-venti, Cirsium arvense
Area: frequent (B4, C3)
Malvion neglectae (Gutte 1966) Hejny 1978
Hyoscyamo-Malvetum neglectae Aichinger 1933
(Syn.: Malvetum neglectae Felföldy 1942)
Ecol.: waste ground alongside the roads, courtyards
Flor.: Malva neglecta, Polygonum arenastrum, Verbena officinalis
Area: frequent (A1, B2, B4, C3)
Malvo neglectae-Chenopodietum vulvariae Gutte 1966
Ecol.: courtyards, waste grounds
Flor.: Malva neglecta, Chenopodium vulvaria, Polygonum arenastrum, Poa annua
Area: sporadic (B4, C3)

ARTEMISIETEA VULGARIS Lohm. et al. ex von Rochow 1951
(Perennial and thristle-rich subxerophiolous ruderal communities of temperate region)
ONOPORDETALIA ACANTRHII Br.-Bl. et R. Tx. ex Klika et Hadač 1944
Onopordion acanthii Br.-Bl. et al. 1936
Carduo acanthoidis-Onopordetum acanthii Soó ex Timár 1955
Ecol.: waste and rough ground, pastures, uncultivated lands
Flor.: Onopordon acanthium, Carduus acanthoides, Artemisia vulgaris, Bromus sterilis
Area: sporadic (A1, A2, B2, B3, B4)
Dauco-Melilotion Görs 1966
Melilotetum albo-officinalis Sissingh 1950
Ecol.: uncultivated and degraded lands, alongside railways
Flor.: Melilotus albus, M. officinalis, Echium vulgare, Centaurea micrantha, Reseda luteola
Area: frequent (A1, A2, B1, B2, B3, B4, C1, C2, C3)
Dauco-Picridetum Görs 1966
Ecol: uncultivated lands, alongside roads
Flor.: Daucus carota, Picris hieracioides, Centaurea micranthos, Crepis rhoeadifolia
Area: frequent (B2, B3, B4, C3)
Tanaceto-Artemisietum vulgaris Sissingh 1950
Ecol.: waste places, uncultivated fields, alongside roads
Flor.: Tanacetum vulgare, Artemisia vulgaris, Cichorium intybus, Daucus carota, Picris hieracioides, Inula britannica
Area: common
Poo compressae-Tussilaginetum R. Tx. 1931
Ecol.: disturbed ground, open habitats, sliding slopes, ditches
Flor.: Tussilago farfara, Poa compressa, Ranunculus repens, Rumex obtusifolius, Juncus bufonius
Area: common
Calamagrostis epigeios derivate community (DC)
Ecol.: uncultivated lands, eroded field
Flor.: Calamagrostis epigeios, Erigeron annuus, Daucus carota
Area: common
Arction lappae R. Tx. 1937
Conietum maculati I. Pop (1965) 1968
Ecol.: damp ground, roadside bank ditches
Flor.: Conium maculatum, Elymus repens, Urtica dioica, Ballota nigra
Area: common
Arctietum lappae Felföldy 1942
(Syn.: Arctio-Ballotetum nigrae Morariu 1943)

Ecol.: rough ground, waysides, hedgerows
Flor.: Arctium lappa, A. tomentosum, Ballota nigra, Leonurus cardiaca, Carduus acanthoides
Area: frequent (A1, B2, B3, B4, C3)

Carduetum acanthoidis Felföldy 1942
Ecol.: degraded fields, pastures
Flor.: Carduus acanthoides, Artemisia vulgaris, Urtica dioica, Elymus repens
Area: frequent A1, B1, B2, B3, B4, C2, C3, G3)

Arctio-Artemisietum vulgaris Oberd. et al. ex Seybold et Müller 1972
Ecol.: rough grounds, waysides, disturbed fields
Flor.: Arctium lappa, Artemisia vulgaris, Elymus repens
Area: sporadic (B2, B3, B4, C2, C3, G3)

Cirsietum lanceolati-arvensis Morariu 1943
Ecol.: uncultivated lands, degraded fields
Flor.: Cirsium lanceolatum, C. arvense, Elymus repens, Conyza canadensis
Area: frequent (A1, B1, B3, B4? C2, C3)

Balloto-Malvetum sylvestris Gutte 1966
(Syn.: Malvetum sylvestris Todor et al. 1971)
Ecol.: uncultivated fields, fences, waysides
Flor.: Ballota nigra, Malva sylvestris, Hordeum murinum, Bromus sterilis
Area: sporadic (B2, B3, B4, C3, J6)

Lycietum barbarum Felföldy 1942
Ecol.: waysides, hedgerows (fences)
Flor.: Lycium barbarum, Ballota nigra, Elymus repens, Polygonum arenastrum
Area: sporadic mainly in the Transylvanian Plain

Artemisietum annuae Morariu 1943
Ecol.. uncultivated lands, waysides
Flor.: Artemisia annua, Elymus repens
Area: sporadic (B2, B3, C2)

AGROPYRETALIA INTERMEDIO-REPENTIS (Oberd. et al. 1967) T. Müller et Görs 1969

Convolvulo-Agropyrion repentis Görs 1966

Convolvulo-Agropyretum repentis Felföldy 1943
(Syn.: Agropyron repens-Convolvulus arvensis ass. Felföldy 1943; non Agropyron repens ass. Felföldy 1942)
Ecol.: waste and rough ground, alongside roads, uncultivated lands
Flor.: Convolvulus arvensis, Elymus repens, Poa annua, Polygonum arenastrum, Conyza canadensis, Capsella bursa-pastoris, Medicago lupulina
Area: common

Aristolochio-Convolvuletum arvensis Ubrizsy 1967
(Syn.: Setario-Aristolochietum clematitis F. Diaconescu 1978)
Ecol.: alongside roads, alongside rivers
Flor.: Aristolochia clematitis, Convolvulus arvensis, Cardaria draba, Cirsium arvense
Area: frequent (B1, B2, B3, B4, C3)

Falcario-Agropyretum repentis (Felföldy 1942) T. Müller et Görs 1969
(Syn: Bas. Agropyron repens ass. Felföldy 1942 p.p.)
Ecol.: waysides, railway margins, uncultivated lands
Flor.: Falcaria vulgaris, Elymus repens, Polygonum arenastrum, Convolvulus arvensis, Berteroa incana
Area: frequent (A1, B2, B3, B4, J6)

Lepidietum drabae Timár 1950
Ecol.: disturbed ground, open, semi-open habitats
Flor.: Cardaria draba, Polygonum arenastrum, Poa angustifolia
Area: frequent (A1, B2, B4)

Potentillo argenteae-Artemisietum absinthii Falinski 1965
Ecol.: roadsides, uncultivated lands
Flor.: Artemisia absinthium, Potentilla argentea, Convolvulus arvensis
Area: sporadic (D2)

Artemisio-Agropyrion intermedii T. Müller et Görs 1969

Melico transsilvanicae-Agropyretum repentis T. Müller in Görs 1966
Ecol.: alongside roads, hedges, dams
Flor.: Melica transsilvanica, Elymus repens, Artemisia campestris, Poa angustifolia
Area: sporadic (B2, B3, B4, C2)

Artemisio campestris-Agropyretum intermedii Schneider-Binder1976
Ecol.: degraded sunny places, warm slopes
Flor.: Elymus hispidus, Artemisia campestris, A.absinthium, Festuca rupicola, Bupleurum rotundifolium
Area: sporadic (B2, B3, B4, J6)

BIDENTETEA TRIPARTITI R. Tx. et al. ex von Rochow 1951
(Annual ruderal communities of periodically flooded, nutrient-rich and related habitats)

BIDENTETALIA TRIPARTITI Br.-Bl. et R. Tx. ex Klika et Hadač 1944

Bidention tripartiti Nordhagen 1940

Polygono lapathifolii-Bidentetum Klika 1935
(Syn.: Bidentetum tripartiti W. Koch 1926)
Ecol.: damp places, marshes, ditches, alongside the brooks

Flor.: Bidens tripartitus, Persicaria lapathifolia, P. mitis, Rumex crispus
Area: frequent (A2, B3, J3, J4, J5, J6)

Bidenti-Polygonetum hydropiperis Lohm. in R. Tx. 1950
Ecol.: alongside the rivers and brooks, uncultivated wet places, ditches on mud soils
Flor.: Persicaria hydropiper, Bidens tripartita, Poa palustris, Ranunculus repens
Area: frequent (A2, B2, B3, C2, C3, J6)

Stachydi-Bidentetum tripartitae Felföldy 1943
[Syn.: Bidens tripartita-Stachys annua ass. Felföldy 1943; Bidentetum tripartiti Koch 1926 (art. 36.)]
Ecol.: wet places, marshlands, pools
Flor.: Bidens tripartitus, Stachys palustris, Lycopus europaeus, Mentha aquatica, Galium palustre
Area: rare (near pools)

Xanthio strumarii-Chenopodietum I. Pop 1968
Ecol.: wet places, alongside the rivers and brooks, uncultivated fields
Flor.: Xanthium strumarium, Chenopodium album, Echinochloa crus-galii, Persicaria lapathifolia, Bidens tripartitus
Area: frequent,especially alongside the rivers Küküllő (Târnava Mare, Târnava Mica), Nyárád (Niraj), Olt, Feketeügy (Rîul Negru) etc.

Rumici-Alopecuretum aequalis Cîrţu 1972
Ecol.: wet places, flood plains, backwaters, marshlands
Flor.: Alopecurus aequalis, Rumex crispus, Agrostis stolonifera, Ranunculus sceleratus
Area: sporadic (C3, J6)

Chenopodion rubri Soó 1949
[Syn.: Chenopodion fluviatile R. Tx. in Poli et J. Tx. 1960 (art. 34); Chenopodion rubri Soó 1968 (art. 8); Chenopodion glauci Hejný 1974 (art. 29)]

Echinochloo-Polygonetum lapathifolii Soó et Csűrös 1947
Ecol.: wet places, waste-lands, flood plains, ditches, uncultivated wet fields,
Flor.: Echinochloa csrus-galli, Persicaria lapathifolia, Chenopodium glaucum, Ch. urbicum, Ch. album, Rorippa sylvestris, Gnaphalium uliginosum
Area: frequent, especially alongside the rivers Olt, Küküllő (Târnava), Nyárád (Niraj) etc.

Chenopodietum rubri Timár 1947
Ecol.: waste-lands, wet places, flood plains, muddy river banks
Flor.: Chenopodium rubrum, Persicaria lapathifolia, Juncus articulatus, Bidens tripartitus
Area: sporadic (B3, C3, J6)

GALIO-URTICETEA Passarge ex Kopecký 1969
(Tall-herb mesophilous anthropogenous fringe vegetation of woodlands and scrubs of water courses)
LAMIO ALBI-CHENOPODIETALIA BONI-HENRICI Kopecký 1969
Geo urbani-Alliarion petioltae Lohm. et Oberd. in Görs et T. Müller 1969
Sambucetum ebuli Felföldy 1942
Ecol.: waysides, waste-lands, railway borders, uncultivated fields
Flor.: Sambucus ebulus, Carduus acanthoides, Urtica dioica, Anthriscus sylvestris, Elymus repens, Galium aparine, Bromus sterilis
Area: frequent, mostly in the region of the Transylvanian Plain
Note: In Europe several vicarinat communities and clinal variations like: Heracleo-Sambucetum ebuli Brandes 1983 (Ch. sp. Heracleum sphondyllium, Western Europe, Iberian area), Urtico-Sambucetum ebuli Brandes 1983 (Ch. sp. Ballota nigra subsp. nigra, Urtica dioica, Central-Western Europe) were recognized and described (Brandes 1982, 1983, Mucina 1991). The community studied and described by Felföldy (1942, s. str.) is characteristic for Central- and South-East Europe (Ch. sp. Carduus acanthoides).
Conio-Chaerophylletum bulbosi I. Pop 1968
Ecol.: alongside fences, diches, waste-lands
Flor.: Chaerophyllum bulbosum, Conium maculatum, Galium aparine, Artemisia vulgaris
Area: sporadic (A1, A2, B3, B4, C3)
Alliario officinalis-Chaerophylletum temuli Lohm. 1949
Ecol.: alongside forests, shrubs, fences, brooks, uncultivated lands
Flor.: Alliaria petiolata, Chaerophyllum temulum,Chelidonium majus
Area: sporadic (little studied)
Geo urbani-Chelidonietum majoris Jarolimek et al 1997
Ecol.: waste-lands, fences, parks, semi-shadow sites
Flor.: Chelidonium majus, Geum urbanum, Lamium maculatum, Ballota nigra, Bromus sterilis, Urtica dioica
Area: sporadic (B2, B3, B4, C2, C3)
Impatienti noli-tangere-Stachyon sylvaticae Görs et Mucina 1993
Epilobio-Geranietum robertiani Lohm. ex Görs et T. Müller 1969
Ecol.: borders of forests, roads and paths in forests, open woodlands,
Flor.: Geranium robertianum, Epilobium montanum, Mycelis muralis, Festuca gigantea
Area: sporadic (B3, B4, C2, C3, G3)
Urtico-Parietarietum officinalis Segal in Mennema et Segal ex Klotz 1985
Ecol.: open woodlands, damp valleys, rich soils
Flor.: Parietaria officinalis, Urtica dioica, Aegopodium podagraria, Brachypodium sylvaticum, Stachys sylvatica
Area: sporadic (B1, B2, B3, B4, C3)

Aegopodion podagrariae R. Tx. 1967

Urtico-Aegopodietum podagrariae R. Tx. ex Görs 1968

Ecol.: wet and nitrogenous sites, damp pastures

Flor.: Aegopodium podagraria, Urtica dioica, Dactylis glomerata

Area: sporadic (D2, D4)

Chaerophylletum aromatici Neushäuslová-Novotná et al. 1969

Ecol.: alongside fences, broks, waysides

Flor.: Chaerophyllum aromaticum, Aegopodium podagraria, Heracleum sphondyllium, Galium aparine

Area: sporadic (E1, E2, G2)

Anthriscetum sylvestris Hadač 1978

Ecol.: alongside brooks, nitrogenous damp sites

Flor.: Anthriscus sylvestris, Urtica dioica, Arrhenatherum elatius, Galium aparine

Area: sporadic (B3, C3)

Sisymbrietum strictissimi Brandes in Mucina 1993

Ecol.: alongside rivers, brooks, fences, borders of bushes and woods

Flor.: Sisymbrium strictissimum, Urtica dioica, Galium aparine, Elymus repens

Area: sporadic, margin of softwood forests alongside the rivers and brooks ex. Maros (Mureş), Nagy Küküllő (Târnava Mare), Fehér Nyikó (Nico Alba), Kászon (Caşin) etc.

CONVOLVULETALIA SEPIUM R. Tx. 1950

Senecion fluviatilis R. Tx. 1950

Urtico-Convolvuletum Görs et T. Müller 1969

(Syn.: Calystegietum sepium R. Tx. 1947)

Ecol.: river banks, ditches, flood plains, marshes

Flor.: Calystegia sepium, Elymus repens, Senecio sarracenicus

Area: sporadic, alongside the rivers (B2, B3, J4, J6)

Bidenti-Calystegietum Felföldy 1943

(Syn.: Bidens tripartita-Calystegia ass. Felföldy 1943)

Ecol.: margin of pools, ditches, brooks

Flor.: Calystegia sepium, Bidens tripartitus, Solanum dulcamara, Lycopus europaeus

Area: sporadic (B2, B3, C1, C2, J6)

Senecionetum fluviatilis T. Müller in Oberd. 1983

Ecol.: banks of rivers, streamsides, flood plains

Flor.: Senecio sarracenicus, Calystegia sepium, Phalaris arundinacea, Urtica dioica

Area: localy frequent (J3, J4)

Calystegio-Agropyretum repentis Felföldy 1943 (nom.)

(Agropyron repens-Calystegia sepium ass. Felföldy 1943)

Ecol.: waysides, dams, ditches, alongside brooks

Flor.: Elymus repens, Calystegia sepium, Conyza canadensis, Stachys palustris
Area: sporadic (J3, J4, J5, J6)

Petasition officinalis Sillinger 1933

Telekio-Petasitetum hybridi (Morariu 1967) Resmeriţa et Raţiu 1974 (nom. invers.)
(Syn.. Petasiteto-Telekietum speciosae Morariu 1967)
Ecol.: mountainous valleys, streamsides, damp places
Flor.: Telekia speciosa, Petasites hybridus, Carduus personatus, Chaerophyllum hirsutum, Melandrium rubrum, Filipendula ulmaria
Area: frequent (D1, D2, D3, D4, E3, G3, I1, I2)

Telekio speciosae-Aruncetum dioici S. Oroian 1998
Ecol.: streamsides, habitats of semi-shaded wood margins and clearings
Flor.: Aruncus dioicus, Telekia speciosa, Spiraea chamaedryfolia,
Area: rare (D2)

Petasitetum kablikiani Pawl. et Walas 1949
Ecol.: mountainous valleys, wet places, streamsides
Flor.: Petasites kablikianus, Filipendula ulmaria, Stellaria nemorum
Area: uncertain and little studied (D2, E3)

Aegopodio-Petasitetum hybridi R. Tx. 1947
[Syn.: Petasitetum hybridi (Dostal 1933) Soó 1940 (art. 36)]
Ecol.: submontane streamsides and damp fields of raw alluvium soils
Flor.: Petasites hybridus, Aegopodium podagraria
Area: sporadic (C1, C2, E3, G2)
Note: It can be remark the inconsequency of the syntaxonomical system, therefore a part of the the semi-natural communities of Petasition would be better to be included in Molinietalia.

Galio-Urticetea derivate communities (DC.)

Solidago gigantea (DC.)
Ecol.: riversides, brooks, damp places, uncultivated fields
Flor.: Solidago gigantea agg., Elymus repens, Urtica dioica
Area: actually spreading: the upper part of the rivers Nagy Küküllő (Târnava Mare) ex. Segesvár (Sighişoara), Újszékely (Secuieni), Alsóboldogfalva (Bodogaia), Székelykeresztúr (Cristuru-Secuiesc), Nagygalambfalva (Porumbenii Mari), Décsfalva (Dejuţiu); Kis Küküllő (Târnava Mică) Balavásár (Bălăuşeri) and of the brooks Gagy (Geoagiu), Fehér Nyikó (Nico Alba) etc.

Fallopia japonica agg. (DC.)
Ecol.: riversides, fences, roadsides, waste-lands
Flor.: Fallopia x bohemica, Fallopia japonica (monodominant stands)
Area: frequent: Újszékely (Secuieni), Alsóboldogfalva (Bodogaia), Székelykeresztúr (Cristuru-Secuiesc), Betfalva (Beteşti), Nagygalambfalva (Porumbenii

Mari), Bögöz (Mugeni), Székelyudvarhely (Odorheiu-Secuiesc), Zeteváralja (Subcetate), Küküllőmező (Poiana Târnavei), Rugonfalva (Rugănesti), Siménfalva (Şimoneşti), Balavásár (Balăuşeri), Makfalva (Ghindari), Erdőszentgyörgy (Sângeorgiu de Pădure), Vargyas (Vârghiş), Sepsiszentgyörgy (Sf. Gheorghe), Imecsfalva (Imeni), Kézdiszentlélek (Sânzieni), Kovászna (Covasna), Csomakőrös (Chiuruş), Cófalva (Ţufalău), Zágon (Zágon), Papolc (Păpăuţi), Szováta (Sovata), Ákosfalva (Acăţari), Gernyeszeg (Gorneşti), Nagyernye (Ernei), Körtvélyfája (Periş), Alsóköhérd (Chiharu de Jos) etc.

Helianthus tuberosus agg. (DC)

Ecol.: waysides, riverbanks, waste-lands

Flor.: Helianthus tuberosus, H. decapetalus

Area: locally frequent: alongside the main rivers and brooks like Nagy Küküllő (Târnava Mare), Kis Küküllő (Târnava Mică), Maros (Mureş), Feketeügy (Rîul Negru), Barót (Baraolt) etc.

Rudbeckia laciniata (DC)

Ecol.: riversides, wet meadows, fresh meadows, dam places

Flor.: Rudbeckia laciniata, Echinocystis lobata, Holcus lanatus, Poa palustris

Area: locally frequent: alongside the rivers Kis Küküllő (Târnava Mica) especially between Parajd-Balavásár (Praid-Bălăuşeri), Korond (Corund), Nyárád (Niraj), Szakadát (Sacădăt), Feketeügy (Rîul Negru) etc.

Impatiens glandulifera (DC)

Ecol.: riverbanks, pools, wet places

Flor.: Impatiens glandulifera, Calystegia sepium, Aegopodium podagraria,

Area: sporadic: expl. Makfalva (Ghindari), Siklód (Şiclod), Énlaka (Inlănceni) Nagygalambfava (Porumbenii Mari), Székelymagyaros (Aluniş), Nagyernye (Ernei), Rétyi Nyír (Reci), Kézdiszentlélek (Sânzieni) etc.

Aster lanceolatus (DC)

Ecol: floodplains, riverbanks, pools, wet places

Flor.: Aster lanceolatus, Elymus repens, Poa trivialis

Area: locally frequent: alongside the main rivers ex. Nagy Küküllő (Târnava Mare), Kis Küküllő (Târnava Mică), Nyárád (Niraj), Fehér Nyikó (Nico Alba), Olt, Maros (Mureş), Feketeügy (Rîul Negru), Barót (Baraolt) etc.

POLYGONO ARENASTRI-POËTEA ANNUAE Rivas-Martinez 1975 corr. Rivas-Martinez et al. 1991

(Short-lived therophyte-rich vegetation of trampled habitats)

POLYGONO ARENASTRI-POËTALIA ANNUAE R. Tx. in Géhu et al. 1972 corr. Rivas-Martinez

Matricario matricaroidis-Polygonion arenastri Rivas-Martinez 1975 corr. Rivas-Martinez et al. 1991

Fig. 5. Populations of *Lysimachia thyrsiflora*, component of the *Caricetum lasiocarpae-Sphagnetum* (Csomad-Mts.)

Fig. 6. Populations of *Angelica arhangelica* component of the *Telekio-Patesitetum hybridi* (Göregény-Mts.)

Fig. 7. Invasive population of *Impatiens glandulifera* in the valley of Nagy-Küküllő (Nagygalambfalva, Porumbenii Mari)

Fig. 8. Stands of *Rudbeckia laciniata* spreading alongside the river Kis-Küküllő (Parajd-Szováta, Praid-SOvata)

Plantagini majoris-Polygonetum arenastri Knapp ex Passarge 1964 corr. Borhidi 2003

[Syn.: Polygonetum avicularis Gams 1927 (art. 37, 43), Lolio perennis-Polygonetum avicularis Br.-Bl. 1930 (art. 2b, 43), Plantagini-Polygonetum avicularis Knapp ex Passarge 1964 (art. 43.)]

Ecol.: trampled pathways and roads, waste-lands

Flor.: Polygonum arenastrum, Plantago major, Lolium perenne, Prunella vulgaris, Medicago lupulina

Area: common

Poetum annuae Felföldy 1942

[Syn.: Poëtum annuae Gams 1927 (art. 3c, 3f.)]

Ecol.: mesic waysides, trodden damps and pathways

Flor.: Poa annua, Lolium perenne, Trifolium repens, Verbena officinalis

Area: common

Sclerochloo-Polygonetum arenastri Soó ex Bodrogközy 1966 corr. Mucina 1991

[Syn.: Sclerochloo-Polygonetum avicularis Soó 1940 (art. 2b), Sclerochloo-Polygonetum avicularis Soó ex Bodrogközy 1966 (art. 43)]

Ecol.: alongside trampled pathways and roads

Flor.: Polygonum arenastrum, Sclerochloa dura, Poa compressa, Lolium perenne

Area: frequent (B2, B3, C3, G3)

VEGETATION OF CLEARINGS

EPILOBIETEA ANGUSTIFOLII R. Tx. et Prsg. ex von Rochow 1951

(Tall-herb and tall-grass communities of woodland clearings and related shrubbery)

ATROPETALIA Vlieger 1937

[Syn.: Epilobietalia angustifolii (Vlieger 1937) R. Tx. 1950 corr. Soó 1961 (art. 43)]

Carici piluliferae-Epilobion angustifolii R. Tx. 1950

[Syn.: Epilobion angustifolii Soó 1930 (art. 2b.)]

Senecioni sylvatici-Epilobietum angustifolii R. Tx. 1937

Ecol.: chopped woodlands, wood-margins, open places in woods

Flor.: Chamaenerion angustifolium, Senecio sylvaticus, Rubus idaeus, Epilobium montanum

Area: frequent (D1, D3, D3, E2, E3, F2, F3, G2, I1, I2 etc.)

Digitali-Calamagrostietum arundinaceae Sillinger 1933

(Syn.: Calamagrostietum arundinaceae Soó 1960)

Ecol.: chopped woodlands, wood-margins, open places in woods

Flor.: Calamagrostis arundinacea, Digitalis grandiflora, Chamaenerion angustifolium, Gnaphalium sylvaticum, Galeopsis speciosa

Area: common in the hilly and the mountainous region

Calamagrostietum epigei Juraszek 1928

Ecol.: wood-margins, open woodlands

Flor.: Calamagrostis epigeios, Poa nemoralis, Hypericum perforatum

Area: common, mostly in the hilly region

Atropion Br.-Bl. ex Aichinger 1933

Epilobio-Atropetum bella-donnae R. Tx. 1931

Ecol.: chopped beechwoods, open places in woods, damp valleys

Flor.: Atropa bella-donna, Rubus idaeus, Chamaenerion angustifolium, Mycelis muralis

Area: frequent in the beechwood region

Eupatorietum cannabini R. Tx. 1937

Ecol.: chopped beechwoods, damp valleys, open places in woods

Flor.: Rubus idaeus, Urtica dioica, Deschampsia caespitosa, Chamaenerion angustifolium

Area: frequent in the beechwood region

Sambuco-Salicion capreae R. Tx. et Neumann in R. Tx. 1950

Sambucetum racemosae Noirfalise in Lebrun et al. ex Oberd. 1967

Ecol.: montane wood margins, open places in forests, roads and paths in forests

Flor.: Sambucus racemosa, Salix caprea, Rubus idaeus, Athyrium filix-femina, Senecio sylvaticus, S. fuchsii

Area: sporadic, especially in the montane beechwood region

Rubetum idaei Gams 1927

Ecol.: open places in montane forests, wood margins

Flor.: Rubus idaeus, Calamagrostis arundinacea, Epilobium angustifolium, Fragaria vesca, Poa nemoralis, Salix caprea

Area: frequent in the beech and spruce- fir woodlands region

Sorbo-Betuletum pendulae Dihoru 1975 corr. hoc loco

(Syn.: Sorbo-Betuletum Dihoru 1975 ass. provis.; Calamagrostis arundinacea-Betula verrucosa ass. Resm. et Csűrös 1966 p. p.)

Ecol.: montane rocky valleys, moist slopes on scheletic soils

Flor.: Betula pendula, Sorbus aucuparia, Calamagrostis arundinacea, Pteridium aquilinum

Area: sporadic (D2, F3, I1)

Aegopodio-Sambucetum nigrae Doing 1963

Ecol.: river banks, open places in the oak- ash tree forests of the plain

Flor.: Sambucus nigra, Aegopodium podagraria, Rubus caesius, Circaea lutetiana

Area: rare, alongside the rivers (A2, J6) (little studied)

Spiraeetum ulmifoliae Zólyomi 1939

(Syn.: Calamagrosteto-Spiraeetum ulmifoliae Resmeriţa et Csürös 1966 p. p.)

Ecol.: rocky places, bushes, damp valleys
Flor.: Spiraea chamaedryfolia, Aruncus dioicus, Poa nemoralis
Area: sporadic (D2, G1, G2, F3)

TEMPERATE AND BOREAL WOODLANDS AND SCRUBS

Temperate broadleaved forests and scrubs
SALICETEA PURPUREAE Moor 1958
(Riparian woods and scrubs of willow and poplar)
SALICETALIA PURPUREAE Moor 1958
Salicion eleagni Moor 1858
Salici purpureae-Myricarietum Moor 1958
(Syn.: Myricario-Epilobietum Aichinger 1933; Myricarietum germanicae Rübel 1912)
Ecol.: riverbanks, wet-sandy places
Flor.: Myricaria germanica, Salix purpurea, Epilobium hirsutum, E. dodonaei, Calamagrostis epigeios, Mentha longifolia
Area: sporadic alongside the montane rivers (B3, E3, J6, I1) [Nagy Küküllő (Târnava Mare), Kovacs-brook, Zágon (Zagon), Nagy Bászka (Basca Mare)]
Salicion triandrae T. Müller et Görs 1958
Rumici crispi-Salicetum purpureae Kevey in Borhidi et Kevey 1996
(Syn.: Salicetum purpureae Wendelberger-Zelinka 1952 p.p.)
Ecol.: stony riverbanks, flood plains, bushes
Flor.: Salix purpurea, Salix alba, Rumex crispus, Rorippa amphibia, Phalaris arundinacea
Area: frequent alongside the main rivers: Maros (Mureş), Küküllök (Târnave), Olt
Polygono hydropiperi-Salicetum triandrae Kevey in Borhidi et Kevey 1996
[Syn.: Salicetum triandro-viminalis (Malcuit 1929) R.Tx. 1948 p. p.]
Ecol.: riverbanks with mud and sandy places, flood plains, bushes
Flor.: Salix triandra, Salix alba, S. viminalis, Myosotis palustris, Persicaria hydropiper, Elymus repens
Area: sporadic (A2, CA, B3, E3, J4, J6)
Salicion albae Soó 1930 em. T. Müller et Görs 1958
Salicetum albae Issler 1924
[Syn.: Salici-Populetum (R. Tx. 1931) Mejer-Drees 1936 p.p.; Populeto-Salicetum Zólyomi 1955 p.p., Ass. Salix alba-Polygonum hydropiper Donița et Dihoru 1961]
Ecol.: riverbanks, floodplains, wet places, softwood sites

Flor.: Salix alba, S. fragilis, Populus alba, Rubus caesius, Echinocytis lobata, Phragmites australis, Persicaria hydropyper
Area: common alongside the main rivers and brooks: Maros (Mureş), Küküllők (Târnave), Olt

ALNETEA GLUTINOSAE Br.-Bl. et Tx. ex Westhoff et al. 1946
(Alder and willow woodlands of swamps, fens and wet places)
ALNETALIA GLUTINOSAE R. Tx. 1937
Alnion glutinosae Malcuit 1929
Carici elongatae-Alnetum Koch 1926
(Syn.: Dryopteridi-Alnetum Klika 1940)
Ecol.: fens with alder trees, marshes, wet and peaty places
Flor.: Alnus glutinosa, Frangula alnus, Dryopteris cristata, D. carthusiana, Carex elongata, C. elata, C. acutiformis, Circaea alpina
Area: sporadic (J6) Rétyi Nyír (Reci)
SALICETALIA AURITAE Doing 1962
Salicion cinereae T. Müller et Görs ex Passarge 1961
Salici pentadrae-Betuletum pubescentis (Zólyomi 1931) Soó 1955
Ecol.: wet places, peat bogs, turfy soils
Flor.: Salix cinerea, S. pentandra, Betula pubescens, Populus tremula, Ribes nigra, Carex rostrata, Homogyne alpina, Veratrum album
Area: rare (D4) Ördögtó
Salicetum auritae Jonas 1935
Ecol.: fens, peaty bogs, marshes, wet places
Flor.: Salix aurita, Betula pubescens, Salix cinerea, Frangula alnus, Valeriana dioica
Area: sporadic (J1, J3, J4)
Calamagrosti-Salicetum cinereae Soó ex Zólyomi in Soó 1955
[Syn.: Salicetum cinereae Zólyomi 1934 (art. 36)]
Ecol.: peaty bogs, fens, wet places
Flor.: Salix cinerea, Calamagrostis canescens, C. neglecta, Carex elata, C. acutiformis, Thelypteris palustris
Area: sporadic (D2, D3, D4, J1, J2, J3, J4)
Betulo pubescentis-Sphagnetum recurvi Zólyomi 1931
Ecol.: peaty bogs, raised bogs, wet places
Flor.: Betula pubescens, Salix cinerea, Alnus glutinosa, Dryopteris carthusiana, Sphagnum recurvum
Area: sporadic (J3, J4)

Temperate scrubs
RHAMNO-PRUNETEA Rivas-Goday et Borja Carbonell 1961
(Shrub mantle vegetation in regions of temperate deciduous woods)
PRUNETALIA SPINOSAE R. Tx. 1952
Prunion spinosae Soó 1947
Pruno spinosae-Crataegetum Soó (1927) 1931
Ecol.: margin of forests, pastures, waysides
Flor.: Crataegus monogyna, Prunus spinosa, Rosa canina, Clinopodium vulgare, Origanum vulgare
Area: frequent, mostly in the hilly pastures
Prunetum tenellae Soó 1947
[Syn.: Amygdaletum nanae sensu auct. (art. 30)]
Ecol.: sunny slopes, hilly ridges
Flor.: Prunus tenella (Amygdalus nana), Elymus hispidus, Thalictrum minus, Cynanchum vincetoxicum, Poa angustifolia
Area: rare (G3) Csókás near Erősd (Ariuşd)
Coryletum avellanae Soó 1927
Ecol.: sunny slopes, margin of woodlands
Flor.: Corylus avellana, Rosa canina, Agrostis capillaris, Origanum vulgare, Melampyrum bihariense
Area: frequent in the hilly and mountain region (D2, D3, D4, D6, E2, G2)
Corylo-Populetum Br.-Bl. 1919
Ecol.: mesic open sites, clearings, wood margins
Flor.: Corylus avellana, Populus tremula, Polygonatum odoratum, Galium mollugo
Area: sporadic (E2, J3)

Mixed broadleaved woodlands of temperate climate
QUERCO-FAGETEA Br.-Bl. et Vlieger in Vlieger 1937
(Deciduous mesic and subxerophilous woods of temperate regions)
Note: The new approach of the classification of deciduous forests in a broad sence in Europe contains the following orders: Fagetalia sylvaticae, Querco-Carpinetalia, Aceretalia pseudoplatani, Alno-Fraxinetalia, Populetalia albae, Quercetalia pubescentis, Luzulo-Fagetalia, Quercetalia roboris (Dierschke 2004).

FAGETALIA SYLVATICAE Pawlowski in Pawl. et al. 1928
Symphyto cordatae-Fagion (Vida 1963) Täuber 1982
Symphyto cordatae-Fagetum Vida 1959
[(Syn. Fagetum carpaticum Paucă 1941, non Klika 1927, Fagetum sylvaticae siculum Soó 1944, Fagetum dacicum normale Beldie 1951, Fagetum carpaticum

subass. austrocarpaticum Borza 1959 (art. 34a), Dentario glandulosae-Fagetum Matuszkiewicz 1964, Dentario glandulosae-Fagetum Morariu et al. 1968) (art. 2)]
Ecol.: mesic sites, montainous eutrophic beech forests (alt. 700-1100 m)
Flor.: Fagus sylvatica. Symphytum cordatum, Cardamine glanduligera, Hepatica transsilvanica, Primula elatior subsp. leucophylla
Area: sporadic (C1, C2); frequent (D1, D2, D3, D4, D5, E2, E3, E4, F1, F2, F3, G2, G3, H1, H2, I1, I2)

Pulmonario rubrae-Fagetum (Soó 1964) Täuber 1987
[Syn.: Abieti-Fagetum orienti-carpaticum Knapp 1942, Fagetum sylvaticae siculum Soó 1944 p. p., Fagetum dacicum abietosum Beldie 1951, Pulmonario rubrae-Abieti-Fagetum Soó 1964 (34c)]
Ecol.: mountainous beech and fir-tree forests (alt. 800-1200m)
Flor.: Fagus sylvatica, Abies alba, Picea abies, Pulmonaria rubra, Telekia speciosa, Aconitum moldavicum
Area: sporadic (D1, D2, D3, D4, D5, E1, E3, E4)

Leucanthemo waldsteinii-Fagetum (Soó 1964) Täuber 1987
[Syn. Fagetum adenostyletosum Domin 1932; Piceeto-Fagetum auct. roman; Chrysanthemo rotundifolio-Piceo-Fagetum Soó 1964 (34c)]
Ecol.: beech and spruce mixed woods on brown-acid soils with moder
Flor.: Fagus sylvatica, Picea abies, Leucanthemum waldsteinii, Adenostyles alliariae, Cicerbita alpina
Area: frequent (D1, D2, D3, D4, D5, E1, E2, E3, E4, F1, F2)

Festuco drymeiae-Fagetum Morariu et al. 1968
(Syn. Fagetum sylvaticae transsilvanicum Soó facies Festuca drymeia Pop et al. 1964, Symphyto-Fagetum Vida 1959 festucetosum drymeae Coldea 1972)
Ecol.: helio-thermophilous beech woods
Flor.: Festuca drymeia, Festuca heterophylla, Hieracium sabaudum, H. racemosum
Area: sporadic (D4, D5, D6, E1, G2, H1)

Epipactido-Fagetum Resmeriţa 1972
(Syn.: Cephalanthero-Fagetum auct. roman. non Oberd. 1957)
Ecol.: rocky and stony places
Flor.: Fagus sylvatica, Acer platanoides, Cephalanthera rubra, Epipactis helleborine, Actaea spicata
Area: rare (G3) Darázskő (Bölön, Belin)

LUZULO-FAGETALIA Scamoni et Passarge 1959
Luzulo-Fagion Lohmeyer et Tx. in Tx. 1954

Hieracio transsilvanici-Fagetum (Vida 1963) Tauber 1987
[Syn. Hieracio transsilvanico-Luzulo-Fagetum Vida 1963 (art. 34c); Luzulo-Fagetum auct. roman., Fagetum myrtilletosum Soó 1927, Fagetum dacicum luzuletosum Beldie 1951, Deschampsio flexuosae-Fagetum Soó 1962 (art. 36)]

Ecol.: montainous beech woods on acid soils
Flor.: Hieracium transylvanicum, Calamagrostis arundinacea, Vaccinium myrtillus, Deschampsia flexuosa, Homogyne alpina, Luzula luzuloides, Moneses uniflora
Area: frequent (D1, D3, D4, D5, F1, F2, F3, G2, G3, I1, I2)

Populeto-Betuletum pendulae Coldea 1972
Ecol.: eroded slopes, disturbed sites on poor nutrient soils
Flor.: Populus tremula, Fagus sylvatica, Pteridium aquilinum, Oxalis acetosella
Area: sporadic (G2, F3, I1)

Vaccinio-Juniperetum communis Kovács Al. 1989 ex Kovács Al. 1981
Ecol.: wood clearings, disturbed pastures on acid soils
Flor.: Vaccinium myrtillus, Luzula luzuloides, Veronica officinalis, Fagus sylvatica
Arera.: sporadic (G2, F3, I1)

QUERCO-CARPINETALIA Moor 1977
[Syn.: Lathyro-Carpenetalia Täuber 1987 (art. 3g)]
Lathyro-Carpinion Boscaiu 1974

Lathyro hallersteinii-Carpinetum Coldea 1975
[Syn. Stellario-Carpinetum auct. rom. non Oberd 1957, Querco petraeae-Carpinetum Borza 1941, Querco petraeae-Carpinetum Soó et Pócs 1957 (art. 36)]
Ecol.: mesic sites on hilly area
Flor.: Quercus petraea, Q. robur, Carpinus betulus, Stellaria holostea, Lathyrus hallersteinii, L. transsilvanicus, Carex pilosa, Dactylis polygama, Helleborus purpurascens
Area: common, locally frequent (A1, B1, B2, B3, CA, C1, C2, C3, D2, G2, G3)

Melampyro bihariensi-Carpinetum Soó 1964 em. Coldea 1975
[Syn.: Querceto-Carpinetum Soó 1944, Querco robori-Carpinetum Soó et Pócs (art. 36); Quercetum roboris-petraeae dacicum Borza 1959, Querceto-Carpinetum trassilvanicum Soó 1957 (art. 34a)]
Ecol.: oak-hornbeam mesic forests, mesotrophic habitats
Flor.: Quercus robur, Q. petraea, Carpinus betulus, Melampyrum bihariense, Vinca minor, Arum maculatum, Waldsteinia geoides, Silene dubia
Area: locally frequent (A1, A2, B1, B2, B3, B4, CA, G2, G3, J6)

Carpino-Fagetum Paucă 1941
[Syn.: Carpino-Fagetum Vida 1959, Fagetum sylvaticae radnense Soó 1944 (art. 34), Fagetum sylvaticae siculum Soó 1944 (art. 34)]
Ecol.: submontane and hilly hornbeam-beech mixed woods
Flor.: Helleborus purpurascens, Dentaria bulbifera, Galium schultesii, Isopyrum thalictroides

Area: common (C1, C2, CA, D2, D3, D4, E4, G1, G2, G3, H1, H2, I1, I2)

ALNO-FRAXINETALIA Moor 1975
Alnion incanae Pawlowski in Pawl. et Wallisch 1928
Alnenion glutinosae-incanae Oberd. 1953
Aegopodio-Alnetum V. Kárpáti, I. Kárpáti et Jurko 1961
Ecol.: riverbanks in hilly region, wet places, brooks
Flor.: Alnus glutinosa, Carpinus betulus, Salix alba, Aegopodium podagraria, Caltha palustris
Area: frequent: alongside the rivers and brooks, small depressions mainly in the hilly region
Telekio speciosae-Alnetum incanae Coldea (1986) 1990
[Syn. Alnetum incanae auct. roman (art. 36)]
Ecol.: mountane riverbanks, damp places and valleys
Flor.: Telekia speciosa, Matteuccia struthiopteris, Pulmonaria rubra, Petasites hybridus, Impatiens noli-tangere, Stellaria nemorum, Circaea lutetiana
Area: frequent (D1, D2, D3, D4, D6, E1, E2, E3, F2, F3, G2, G3, H1, I1, I2, J1, J2)
Note: Can be distinguish subassociations with Ligularia sibirica, Spirea salicifolia etc. bordering wet places and peatbogs, turfy soils, (J3, J4)

ACERETALIA PSEUDOPLATANI Moor 1975
Tilio platyphylli-Acerion pseudoplatani Klika 1955
Moehringio muscosae-Acerenion Boşcaiu et. al. 1982
Scolopendrio-Fraxinetum Schwickerath 1938
(Syn.: Phyllitidi-Fagetum Vida (1959) 1963, Phyllitidi-Aceretum auct. roman. non Moor 1958, Acereto-Fagetum auct. rom., Fagetum sylvaticae siculum lunarietosum Soó 1944)
Ecol.: mountain defiles, gorges, rocky valleys with humid soils
Flor.: Acer pseudoplatanus, Fraxinus excelsior, Aruncus dioicus, Lunaria rediviva, Phyllitis scolopendrium, Polystichum aculeatum, Actaea spicata
Area: sporadic (C2, H2)
Mercuriali-Tilietum Zólyomi et Jakucs in Zólyomi 1958
Ecol.: deep valleys and slopes on conglomerate, rocky and stony places
Flor.: Tilia platyphyllos, T. cordata, Acer platanoides, Fraxinus excelsior, Mercurialis perennis, Melica uniflora, Parietaria officinalis
Area: sporadic (C2, G2, G3, H1, H2)

QUERCETALIA ROBORIS R. Tx. 1931
Hieracio lachenalii-Quercion petraeae Pallas 1996
(Veronico officinalis-Quercion I. Pop 1971; Genisto germanicae-Quercion Neuhausl et Neuhäuslová-Novotná 1967 p.p.)

Genisto tinctoriae-Quercetum petraeae Klika 1932

[Syn.: Luzulo albidae-Quercetum petraeae Hilitzer 1932 (art. 29); Luzulo albidae-Quercetum subass. transsilvanicum Gergely 1962, subass. dacicum I. Pop 1971 (art. 34); Festuco heterophyllae-Quercetum petraeae Neuhäusl 1964 (art. 29)]

Ecol.: acidophilous and sandy substrates, poor soils

Flor.: Genista tinctoria, Luzula luzuloides, Vaccinium myrtillus, Carex montana, Veronica officinalis, Deschampsia flexuosa, Festuca heterophylla, Poa nemoralis (Subassociations: *vaccinietosum, poetosum nemoralis, festucetosum heterophyllae* etc.)

Area: sporadic (D4, F2, F3, G2, G3, H1, I1, I2)

Junipero-Betuletum Gergely et al. in Rácz et Füzi 1973

Ecol.: sandy-stony places, semi-open habitats

Flor.: Betula pendula, Juniperus communis, Populus tremula, Festuca valesiaca, Luzula luzuloides, Camptothecium lutescens, Pteridium aquilinum

Area: sporadic (G2, J6) [Kovacsok-brook, Bodok-Mts.; Rétyi Nyír (Reci), Zágon (Zagon)]

Note: The differential taxa for the all. Hieracio lachenalii-Quercion: Hieracium lachenalii, H. sylvaticum, H. sabaudum, Poa nemoralis, Festuca heterophylla, Campanula rotundifolia. According to the studies of J. Pallas (1996, 2000) the middle and south-est european acidophilous oak woods belong to the alliances: Hieracio lachenalii-Quercion petraeae Pallas 1996 and Agrostio capillaris-Quercion petraeae Scamoni et Passarge 1959.

Montane heaths and coniferous forests

ERICO-PINETEA I. Horvat 1959

(Calcareous relict montane pine woods)

ERICO-PINETALIA I. Horvat 1959

Erico-Pinion sylvestris Br.-Bl. in Br.-Bl. et al. 1939

(Syn.: Seslerio rigidae-Pinion Coldea 1991)

Seslerio rigidae-Pinetum sylvestris Csűrös et al. 1988

[Syn.: Pineta silvestris-iridosa Guşuleac 1932; Pinetum silvestris seslerietosum Soó 1944; Pinetum sylvestris seslerietosum Csűrös et Spârchez 1963; Poëto-Pinetum sylvestris Borza 1959 (art. 36)]

Ecol.: calcareous rocky places, relict pine woods, habitats of rocky limstone

Flor.: Pinus sylvestris, Iris ruthenica, Cotoneaster integerrima, Juniperus sabina, Teucrium chamaedrys

Area: rare (E3)

Note: The calcareous relict pine woods of the Carpathians can not be included in the communities of the alliances Pino-Quercion, Dicrano-Pinion or Vaccinio-Pinion sylvestris. But the stands with mosses (Hylocomium splendens, Hypnum cupressiforme etc.) indicate the transition to the Piceion excelsae woods.

Juniperetum sabinae Csürös 1958

Ecol.: calcareous rocky places, relict juniper bushes

Flor.: Juniperus sabina, Pinus sylvestris, Silene zawadskii, Daphne cneorum

Area: rare (E3)

VACCINIO-PICEETEA Br.-Bl. in Br.-Bl. et al. 1939

(Coniferous forest vegetation and heaths of more acid soils)

PICEETALIA EXCELSAE Pawlowski in Pawl. et al. 1928

Piceion excelsae Pawlowski in Pawl. et al. 1928

Hieracio transsilvanici-Piceetum Pawl. et Br.-Bl. 1939

[Syn. Piceetum carpaticum Soó 1930, Piceetum excelsae transsilvanicum Soó 1944 (art. 34); Hieracio rotundati-Piceetum Pawl. et Br.-Bl. 1939 (nom. mut. propos. Coldea 1990); Piceetum montanum auct. roman. (art. 36)]

Ecol.: slopes and ridges in the mountainous region with scheletic soils

Flor.: Hieracium transsilvanicum, Senecio fuchsii, Huperzia selago, Calamagrostis villosa, Vaccinium myrtillus, Luzula sylvatica, L. luzuloides, Melampyrum sylvaticum

Area: frequent (D1, D2, D3, D4, D5, D6, E1, E2, E3, F1, F2, F3, I1, I2, J3, J4)

Sphagno-Piceetum abietis (Tx. 1937) Hartman 1942

Ecol.: border of peatbogs, turfy soils

Flor.: Picea abies, Vaccinium myrtyllus, Sphagnum palustris, Sph. russowii

Area: rare: (D4) Ördögtó, (F2) Uz valley, (F3) Veresvíz (Apa Roşie)

Chrysanthemo rotundifolii-Piceion (Krajina 1933) Březina et Hadač in Hadač 1962

Chrysanthemo rotundifolii-Piceetum Krajina 1933

(Syn.: Piceetum transsilvanicum altheherbosum Soó 1944 (art. 34)

Ecol.: herb-rich spruce forests on wet places, mountainous valleys and brooks

Flor.:Leucanthemum waldsteinii, Adenostyles alliariae, Stellaria nemorum, Senecio nemorensis, Athyrium filix-femina, Gentiana ascepiadea

Area: sporadic (D3, D4)

Eriophoro-Pinion sylvestris Passarge et Hoffmann 1968

Eriophoro-Pinetum sylvestris Hueck 1925 em. Passarge et Hoffmann 1968

(Syn.: Pinetum sylvestris eriophoretosum vaginati Zólyomi 1934; Vaccinio-Pinetum sylvestris Kleist 1929 p. p.)

Ecol.: raised bogs, peaty sites

Flor.: Eriophorum vaginatum, Vaccinium oxycoccos, Empetrum nigrum, Pinus sylvestris, Betula pubescens, Sphagnum magellanicum, Andromeda polyfolia

Area: rare (D4) Lucs, Ördögtó, (D5) Mohos, (F3) Veresvíz (Apa Roşie)

JUNIPERO-PINETALIA MUGO Boscaiu 1971
(Syn.: Vaccinio-Juniperetalia Passarge et Hoffmann 1968 p.p.)
Pinion mugo Pawlowski et al. 1928

Campanulo abietinae-Juniperetum sibiricae Simon 1966 corr. Gergely et al. 1973
(Syn.: Juniperetum nanae Soó 1928, Campanulo-Juniperetum nanae Simon 1966)
Ecol.: slopes and plateaux, juniper bushes in the montane and subalpine region
Flor.: Juniperus sibirica, Campanula abietina, Bruckenthalia spiculifolia Vaccinium myrtyllus, Campanula serrata, Melampyrum sylvaticum, Cladonia islandica
Area: sporadic (D1, D3, D4, E1, E2, E3, F3, I1, I2)

Campanulo abietinae-Vaccinietum Boşcaiu 1971
(Syn.: Vaccinietum myrtilli Buia et al. 1962)
Ecol.: open places in the mountainous forests area, forest borders in subalpine belt
Flor.: Vaccinium myrtillus, Vaccinium vitis-idaea, Campanula abietina, Homogyne alpina, Potentilla ternata, Soldanella montana, Deschampsia flexuosa
Area: common (D1, D3, D4, E1, E2, E3, F2, F3, I1)

REFERENCES

ANDREI, M. (1963): Asociaţii de Festuca amethystina din Munţii Ciucului. – Comun. Acad. R. P. R., 16 (6): 541-550.

BELDIE, AL., DIHORU, GH. (1967): Asociaţii vegetale din Carpaţii României. – Comun. Bot. SSNG 6: 133-238.

BOROS, Á. (1942): Adatok a Székelyföld flórájának ismeretéhez. – Scripta Bot. Muz. Transsilv., I: 17-21, 43-46.

BOROS, Á. (1943): A Kukojszás vagy Mohos-tó és a Szent-Anna tó lápja. – Debr. Szemle. 113-115.

BORHIDI, A. (1958): Gypsophilion petraeae foed. nova et contribution à la vegetation du Mont Ceahlău (Carpathes Orientales). – Acta Bot. Sci. Hung. 4 (3-4): 211-231.

BORHIDI, A. (2003): Magyarország növénytársulásai. – Akad. Kiadó, Budapest, 610 p.

BORZA, AL. (1931): Die Vegetation der Pietrele Roşii bei Tulgheş. – Guide de la sixiéme Excursion Phytogeogr. Internat. Roumanie, 170 p.

BORZA, AL. (1959): Flora şi vegetaţia văii Sebeşului. (Flora und Vegetation des Sebestales). – Edit. Academiei, Bucuresti, 326 p.

BORZA, AL., Lupşa, V. (1965): Vegetaţia din ţinutul Blajului II. – Contrib. Bot. Cluj, 197-206.

BORZA, AL., RAŢIU, FL. (1970): Molinietele din bazinul Giurgeului. – Contr. Bot. Cluj, 111-122.

BOŞCAIU, N., BOŞCAIU V., COLDEA, GH., TĂUBER, F. (1982): Sintaxonomia făgetelor carpatine. – In: „Făgetele carpatine. Semnificaţia lor bioistorică si ecoprotectivă." Cluj-Napoca, 228-303.

BUIA, AL. (1963): Les associations à Nardus stricta L. de la R. P. R.– Revue de Biol. 8 (2): 119-137.

BURKART, M., DIERSCHKE, H., HÖLZEL, N., NOWAK, B., FARTMANN, T. (2004): Molinio-Arrhenatheretea (E1) – Kulturgrasland und verwandte Vegetationstypen. Teil 2: Molinietalia. – Synopsis Pflanzenges. Deutchlands, Göttingen, 1-103.

CHIFU, TH., MITITELU, D., DĂSCĂLESCU, D. (1987): Flora şi vegetaţia judeţului Neamţ. – Mem. Sect. Şt. Acad. 10 (1): 281-302.

CIOCÂRLAN, V. (2000): Flora ilustrată a României. – Editura Ceres, Bucureşti, 1138 p.

COLDEA, GH. (1990: Munţii Rodnei. Studiu geobotanic. – Edit. Academiei, Bucureşti, 183 p.

COLDEA, GH. (1991): Prodrome des associations végétales des Carpathes du sud-est (Carpathes Roumaines). – Docum. Phytosoc., Camerino, N. S. 13: 317-359.

COLDEA, GH., KOVÁCS, A. (1969): Cercetări fitocenologice în Munţii Nemirei. – Studii şi Cercet., Biol., Ser. Bot. 21 (2): 95-104.

COLDEA, GH., POP, A. (1994): Über die Saumgesellschaften (Trifolio-Geranietea Th. Müller 1961) aus Siebenbürgen. – Siebenbürgisches Archiv, Böhlau, 5: 63-76.1

COLDEA, GH. (Edit.), COLDEA, GH., SANDA, V., POPESCU, A., ŞTEFAN, N. (1997): Les associations végétales de Roumanie. Tome 1. Les associations herbacées naturalles. – Presses Universitaries de Cluj, 261 p.

CSEDŐ, C., FÚZI I., KISGYÖRGY, Z., RÁCZ, G. (1968): Cartarea plantelor medicinale din flora spontană a Bazinului Ciuc. – In: Rácz G. (red.) „Plantele medicinale din flora spontană a Bazinului Ciuc", Miercurea Ciuc, 101-170.

CSŰRÖS-KÁPTALAN, M. (1970): Stadiul actual al cercetărilor fitocenologice din Transilvania. – Contr. Bot. Cluj, 247-270.

CSŰRÖS-KÁPTALAN, M. (1971): Despre Agrosteto-Festucetum sulcatae şi incadrarea ei taxonomică. – Contr. Bot. Cluj, 193-201.

CSŰRÖS, ŞT. (1951): Ceretări floristice şi de vegetaţie în Munţii Călimani.– Studii. Cercet. Şt., Cluj, 2 (1-2) 127-143.

CSŰRÖS, ŞT. (1964): Über die „Nardo-Calluneten" aus Siebenbürgen (Rumänien). – Archiv f. Naturschutz, Berlin 4 (3): 145-151.

CSŰRÖS, ŞT.(1970): Despre vegetaţia ierboasă a luncilor din Transilvania. – Contr. Bot. Cluj, 123-143.

CSŰRÖS, ŞT. (1973): Geobotanische Forschungen im Casin (Kászon) Becken (Ostkarpaten). – Acta Bot. Acad. Sci. Hung. 19: 55-71.

CSŰRÖS, ŞT., KOVÁCS, A. (1962): Cercetări fitocenologice în raioanele Sighişoara şi Agnita. – Contr. Bot. Cluj, 205-232.

CSŰRÖS, ŞT., RESMERIŢA, I. (1960): Studii asupra pajiştilor de Festuca rubra L. din Transilvania – Contr. Bot. Cluj, 149-173.

CSŰRÖS, ŞT., RESMERIŢA, I., CSŰRÖS-KÁPTALAN, M., GERGELY, I (1961): Contribuţii la cunoaşterea pajiştilor din Câmpia Transilvaniei şi unele consideraţiuni cu privire la organizarea terenului. – Studia Univ. Babeş-Bolyai, Cluj, Biol. 2 (2): 15-61.

CSŰRÖS, ŞT., CSŰRÖS-KÁPTALAN, M., PÁLFALVI, P. (1980): A Csíki-havasok néhány növénytársulásának ökológiai jellemzése. – Acta Hargitensia, Csíkszereda, 417-432.

CSŰRÖS, ŞT., GERGELY, I., CSŰRÖS-KÁPTALAN, M. (1985): Studii fitocenologice asupra pajiştilor de Deschampsia caespitosa (L.) Beauv. din R. S. R. – Contr. Bot. Cluj, 141-157.

DAMIAN, I. (1957): Contributii la studiul vegetaţiei forestiere din jurul oraşului Sighişoara. – Inst. Polit. Braşov, Lucr. Şt. 3: 19-55.

DANCIU, M. (1970): Amygdaletum nanae Soó 1947 în sudul Munţilor Baraolt. – Bul. Inst. Polit. Braşov, Seria B, 12: 117-120.

DANCIU, M. (1972): Asociaţii de rogoz din mlaştina de la Ozunca. – Studii şi Cercet. Biol. Seria Bot. 24 (2): 83-94.

DANCIU, M. (1972): Aspecte fitocenotice din gorunetele munţilor Baraolt.– Bul. Inst. Polit. Brasov, Seria B, 14: 129-134.

DANCIU, M. (1973): Contribuţii la studiul asociaţiilor alianţei Filipendulo-Petasition din sudul munţilor Baraolt. – Bul. Univ. Brasov, Seria C, 15: 123-131.

DANCIU, M. (1974): Studii geobotanice în sudul munţilor Baraolt.– Rezumatul tezei de doctorat, Bucuresti.

DANCIU, M., KOVÁCS, AL. (1979): Flora şi vegetaţia mlaştinilor de la Comandău (jud. Covasna), – Contr. Bot. Cluj-Napoca, 175-189.

DIHORU, GH. (1975): Invelişul vegetal din masivul Siriu. – Edit. Acad. R.S.R., Bucuresti.

DOBRESCU, C., GHENCIU, V. (1970): Aspecte din vegetatia Lacului Roşu (Carpaţii Orientali). – Studii şi Comun. Muz. Şt. Naturii Bacău, 129-136.

DOBRESCU, C., KOVÁCS, ATT. (1972): Übersicht der höheren Pflanzengesellschaften Ostrumäniens (Moldau-Gebiet) I. – Analele Şt. Univ. „Al. I. Cuza", Iaşi, Sect. II. a. Biol. 18, fasc. 1: 127-144.

DOBRESCU, C., KOVÁCS, ATT. (1972): Übersicht der höheren Pflanzengesellschaften Ostrumäniens II. Die Unkrautgesellschaften. – Analele Univ. „Al. I. Cuza" Iasi, Sect. II, a, Biol. 18, fasc. 2: 367-376.

DOBRESCU, C., KOVÁCS, ATT. (1973): Contribuţii la fitocenologia pădurilor de Fagion din Podişul Central Moldovenesc. – Rev. Păd. 88, 11: 592-599.

DOBRESCU, C., KOVÁCS, ATT. (1974): Contributions à la connaisance de l'alliance „Agrostion stoloniferae" Soó (33) 71 du Plateau Central Moldave. – Analele Univ. „Al. I. Cuza" Iaşi, Sect. II, a, Biol. 19, fasc. 1: 145-147.

DIERSCHKE, H. (1995): Syntaxonomical survey of Molinio-Arrhenatheretea in Central Europe. – Colloques Phytosoc. 23: 387-399

DIERSCHKE, H. (1997): Molinio-Arrhenatheretea (E1) – Kulturgrasland und verwandte Vegetationstypen. Teil 1: Arrhenatheretalia. – Synopsis Pflanzenges. Deutschlands, Göttingen, 3: 1-74.

DIERSCHKE, H. (2004): Sommergrüne Laubwälder (Querco-Fagetea s.lat.) in Europa – Einführung und Übersicht. – Tuexenia 24: 13-17.
DRĂGULESCU, C. (1994): Die Vegetation des Miereschtales. – Siebenbürgisches Archiv, Böhlau, 5: 163-180.
DRĂGULESCU, C. (1995): Flora şi vegetaţia din bazinul Văii Sadului. – Editura Constant, Sibiu, 355 p.
EPURAN, D. (2001): Flora şi vegetaţia Munţilor Trotuş (între valea Uzului şi Ghimeş). – Teza de doctorat. Univ. „Al. I. Cuza" Iasi.
FEKETE, L., BLATTNY, T. (1913): Az erdészeti jelentőségű fák és cserjék elterjedése a magyar állam területén I-II. – Joerges nyomda, Selmecbánya.
FINK, G. H. (1977): Pflanzengesellschaften des Schulergebirges (Südostkarpaten). – Stapfia, Landesmuseum Linz, 2, 370 p.
GERGELY, I., RAŢIU, FL. (1973): Vegetaţia mlaştinilor eutrofe din bazinul superior al Ciucului. – Contr. Bot. Cluj, 143-165.
GERGELY, J., FÜZI, J., MÁRTON, A. (1973): Kovászna megye vegetációja. – In: Rácz G., Füzi J. (szerk.) Kovászna megye gyógynövényei. Agronómusok Háza-Árkos, Sepsiszentgyörgy, 66-135.
GERGELY, I., RAŢIU, FL. (1974): Asociaţii vegetale de mlaştini eutrofe rare pentru R. S. România. – Contr. Bot. Cluj-Napoca, 130-144.
GERGELY, I., GROZA, GH., KISGYÖRGY B. (1989): Flora şi vegetaţia mlaştinii „Răbufnitoarea" (Munţii Turiei , Judeţul Covasna). – Contr. Bot. Cluj-Napoca, 25-36.
GHIŞA, E. (1962): Rezervaţia botanică de la Zaul de Câmpie. – Ocrot. Naturii 6: 11-30.
GILS VAN, H., KOVÁCS, J. A. (1977): Geranion communities in Transylvania. – Vegetatio, 33 (2-3): 175-186.
GUB, J. (1996): Erdö-mező növényei a Sóvidéken. – Hazanéző könyvek. Korond.
GUŞULEAC, M. (1932): Zur Kenntnis der Felsenvegetation des Gebietes der Bicaz – Klamm in den Ostkarpathen. – Bul. Fac. Şt. Cernăuţi 6 (1-2): 307-347.
GYÖRGY, A., KOVÁCS, J. A., Perepeliţa, VI., Dóczy, M. (1985): Pajiştile din Munţii Hăşmaş. – Lucrări şt. ICPCP-Braşov, X: 417-446.
HARGITAI, Z. (1942): Adatok Háromszék vármegye növényzetének ismeretéhez. – Scripta Bot. Musei. Transsilv. I: 58-64.
HARGITAI, Z. (1943): Adatok Zágon környéke növényzetének ismeretéhez. – Scripta Bot. Muz. Transsilv. II: 73-76.
HÖHN, M. (1992): A dédai Maros szoros sziklanövényzete. – Bot. Közlem. 78 (Suppl.): 63-67.
HÖHN, M. (1994): Flóra- és vegetációkutatások a Kelemen–havasokban a Maros vízgyűjtő területén. – Kand. Ért. Budapest.
HÖHN, M. (1998): A Kelemen-havasok növényzetéről. – Mentor Kiadó, Marosvásárhely, 114 p.
JURKO, A. (1969): Syntaxonomische Revision der Gesellschaften der Cynosurion-Verbandes in den Rumänischen Karpaten. – Acta Bot. Croatica, 28: 208-219.

KATÓ, Z. (2000): Vegetation of the Fagul Rotund peatbog and the neighbouring swamps from the Apa Roşie Basin (Covasna county, Romania). – Contr. Bot. Cluj-Napoca, I, 65-80.
KOVÁCS, A. (1962): Contribuţii la cunoaşterea vegetaţiei de pe dealul Perkő, – Studia Univ. Babeş-Bolyai., Biol. 2: 15-23.
KOVÁCS, A. (1965): Vegetaţia fineţelor şi păşunilor din împrejurimile oraşului Tg. Secuiesc. – Contr. Bot. Cluj, 237-250.
KOVÁCS, A. (1966): Contribuţii la cunoaşterea pajiştilor naturale din împrejurimile comunei Breţcu (reg. Brasov). – Contr. Bot. Cluj.
KOVÁCS, AL. (1968): Caracterizarea generală a vegetaţiei din împrejurimile oraşului Tg. Secuiesc. – Studia Univ. Babeş-Bolyai, Cluj, Biol. XII, 51-56.
KOVÁCS, A. (1969): Vegetaţia palustră şi higrofilă din împrejurimile oraşului Tg. Secuiesc (jud. Covasna). – Comun. Bot. VIII: 27-40.
KOVÁCS, A. (1971): Vegetaţia de luncă din pasul Oituzului. – Contr. Bot. Cluj, 295-313.
KOVÁCS, AL. (1969): Mestecănişul de la Reci. Studiu monografic. – Aluta, Muz. Sf. Gheorghe, 1: 211-267.
KOVÁCS, AL. (1978): Făgetele din Munţii Bodoc (Jud. Covasna). – Aluta, Studii şi Comun. Muz. Sf. Gheorghe, 1976-1977 (8-9): 227-253.
KOVÁCS, AL. (1981): Flora şi vegetaţia Munţilor Bodoc. – Aluta, Studii si Com. Muz. Sf. Gheorghe, XII-XIII, 363-405.
KOVÁCS, AL., GERGELY, I. (1979): Sesleria uliginosa Opiz în Bazinul inferior al Ciucului (jud. Harghita). – Contr. Bot. Cluj, 155-161.
KOVÁCS, J. A. (1970): Contribuţii floristice şi fitocenologice din Masivul Rez, jud. Harghita. – Lucrare de Licenţă, Univ. „Al. I. Cuza" Iaşi, 119 p.
KOVÁCS, J. A. (1973): Contribuţii fitocenologice din Masivul Rez (jud. Harghita) I. Asociaţii forestiere. – Studii şi Cercet. Biol. Veget., Bucureşti, 25 (1): 34-42.
KOVÁCS, J. A. (1974a): Contribuţii fitocenologice din Masivul Rez (jud. Harghita) II. Asociaţii ierboase xerofile – Anuarul jubil. Muz. Cristuru-Secuiesc, 33-41.
KOVÁCS, J. A. (1974b): In memoriam Pap Sámuel. – Anuarul jubil. Muz. Cristum-Secuiese, 137-143.
KOVÁCS. J. A. (1974c): Cercetări privind flora şi vegetaţia „Masivului Suhard" (Carpaţii Orientali). – Ref. şt. Univ. Iaşi.
KOVÁCS, J. A. (1978): Bonitarea pajiştilor. – Biblioteca ASAS, Bucuresti, 31 p.
KOVÁCS, J. A. (1979a): Munţii Harghita - flora şi vegetaţia. – Publ. SNRSS, 18: 264-267.
KOVÁCS, J. A. (1979b): Indicatorii biologici, ecologici şi economici ai florei pajiştilor. – Minist. Agr. Ind. Alim., Bucureşti, 50 p.
KOVÁCS, J. A. (1981): Conspectul vegetaţiei pajiştilor din R. S. România. In: Cercetări privind germoplasma autohtonă la gramineele perene de pajişti. – Teza de doctorat. Univ. „Al. I. Cuza" Iaşi.
KOVÁCS, J. A. (1994): Broadening of the forage grass and clover genetic resources in the Alp-Carpathian area. – Proceedings of EUCARPIA, Clermont-Ferrand,27-33.

KOVÁCS, J. A. (1995): Lágyszárú növénytársulásaink rendszertani áttekintése. – In: Növénytársulástani és ökológiai tanulmányok (szerk. Szmorad F., Timár G.). Tilia 1: 86-144.

KOVÁCS, J. A. (2002a): A gyepvegetáció sajátosságai Erdélyben. (The characteristics of grassland vegetation in Transylvania - Romania) – Kanitzia 9: 85-150.

KOVÁCS, J. A. (2002b): A gyepvegetáció cönológiai gradiensei a Kárpát-pannóniai térségben. In: Salamon-Albert É. (szerk.) Magyar botanikai kutatások az ezredfordulón. Tanulmányok Borhidi Attila 70. születésnapja tiszteletére. – PTE Növénytani Tanszék, Pécs, 431-446.

KOVÁCS, J. A. (2003): Meso-xerophilous grassland and fringe communities in the Eastern part of the Transylvanien Basin. – Kanitzia 11: 97-126.

KOVÁCS, J. A., LUPASCU, GH. (1974): Unitățile de vegetație în raport cu solul din zona Cheilor Bicazului. – Ref. şt. Univ. Iasi.

KOVÁCS, J. A., CARDAŞOL, V. (1977): Aspects on the agricultural evaluation of grasslands. – Travaux de la Station „Stejarul", Ecologie Terrestre et Génétique (1974-1975): 169-175.

KOVÁCS, J. A., DIHORU, GH. (1982): Coeno-ecological species groups in grasslands of Romania. – Rev. Rom. Biol. Végét., Bucuresti, 29 (1): 91-103.

KOVÁCS, J. A., PEREPELIŢA, VL. (1982): Studii fitoecologice asupra pajiştilor din jud. Harghita. – Archiva IELIEP-Hargita, Miercurea-Ciuc.

KOVÁCS, J. A., LUPASCU, GH., TÓTH E. (1978): Caracterizarea ceno-ecologică a speciei Vinca minor L. – Probleme de ecologie terestră, Ed. Academiei, Bucuresti, 72-78.

KOVÁCS, J. A., CARDAŞOL, V., NEACŞU, M. (1978): Cercetări privind bonitarea pajiştilor din intercoop Feldioara-Braşov. – Lucr. Şt. SCCP-Măgurele, Braşov, 4: 35-47.

KOVÁCS, J. A., GYÖRGY, A., PEREPELITA, VL., DÓCZY, M. (1985): Pajiştile din Munţii Gurghiu-Harghita. – Lucr. Şt. ICPCP-Brasov, 10: 387-416.

MAC, I. (1972): Subcarpaţii Transilvaniei între Mureş si Olt. Studiu geomorfologic. – Edit. Acad.R. S. R. Bucuresti.

MIHĂILESCU, S. (2001): Flora şi vegetaţia Masivului Piatra Craiului. – Vergiliu, Bucureşti, 400 p.

MITITELU, D., ELEKES, E. (1989): Flora şi vegetaţia rezervaţiilor botanice de la Vlăhiţa şi Căpîlniţa (jud. Harghita). – Contr. Bot. Cluj-Napoca, 45-53.

MITITELU, D., NECHITA, N. (1993): Contribuţii la studiul vegetaţiei din masivul Hăşmaş şi Cheile Bicazului. – Studii si Cercet. Muz. Piatra Neamţ, 7: 16-24.

MITITELU, D., SÁNTHA-ELEKES, É. (1984): Vegetaţia rezervaţiilor botanice de la Sâncrăieni, judeţul Harghita. – Volum Festiv Muz. Ist. Nat. Iaşi, 123-128.

MUCINA, L. (1997): Conspectus of Classes of European vegetation. – Folia Geobot. 32: 117-172.

MUCINA, L., GRABHERR, G., ELLMAUER, T. (Herausgeg.) (1993): Die Pflanzengesellschaften Österreichs. Teil I. Anthropogene Vegetation. – Gustav Fischer Verlag, Jena, 578 p.

MUCINA, L., GRABHERR, G., WALLNÖFER, S. (1993): Die Pflanzengesellschaften Österreichs. Teil III. Wälder und Gebüsche. – Gustav Fischer Verelag, Jena , 353 p.
NECHITA, N. MITITELU, D. (1996): Vegetaţia din munţii Hăşmaş, Cheile Bicazului şi Lacul Roşu. – Studii şi Cercet. Muz. Piatra Neamţ, 213-287.
NECHITA, N. (2000): Caracterizarea fitocenologica a masivului Hăşmaş (I). – Studii şi Cercet. Ştiintele Naturii. Muzeul Piatra Neamţ (9): 123-135.
NECHITA, N. (2003): Flora şi vegetaţia cormofitelor din Masivul Hăşmaş, Cheile Bicazului şi Lacul Roşu. – Bibliotheca Historiae Naturalis II, Piatra Neamţ, 383 p.
NIEDERMAIER, K. (1970): Zur Ökologie und Chorologie der Trockenrasenvegetation Rumäniens. – Feddes Rep. 81 (1-5): 243-260.
NYÁRÁDY, A. (1966): Răspîndirea şi caracterizarea ecologo-fitocenologice ale staţiunilor de Festuca porcii Hack. – Notulae Bot. Hort. Agrobot. Clujensis, 81-92.
NYÁRÁDY, A. (1967): Contribuţii la clasificarea unor asociaţii ale ordinului Seslerietalia coeruleae Br.-Bl. 26 din România, I. – Contr. Bot. Cluj, 63-69.
NYÁRÁDY, E. GY. (1929): A vizek és a vizben bövelkedő talajok növényzetéről a Hargitában. – Emlékkönyv a Székely Nemz. Múz. 50 éves jubileumára, Sepsiszentgyörgy, 557-615.
NYÁRÁDY, E. Gy. (1931): Die Vegetation des andesitischen Mures-durchbruchthales zwischen Topliţa und Deda. – Guide de la sixième Excursion Phytogeogr. Internat. Roumanie, Cluj, 185-195.
NYÁRÁDY, E. Gy. (1937): A Gyilkos-tó és Békás-szoros környékének növényzete. – In: Csiby A. (szerk.): Gyilkos-tó klimatikus gyógyhely monográfiája és kalauza. Brassó, 59-72.
NYÁRÁDY, E. Gy. (1943): A csomafalvi Délhegy és növényzeti viszonyai. – Múzeumi Füzetek, EME, Kolozsvár, 36-52.
NYÁRÁDY, E. I. (1951): Raportul de azi al pădurilor, al sării de la Băile Sovata, precum şi trecutul lor istoric. – Lucr. Ses. Gen. St. Acad. R. P. R., 572-581.
NYÁRÁDY, E. I. (1962): Fitocenoze de Carex humilis din Transilvania şi Moldova. – Studii şi Cercet. Biol., Cluj, 13 (2): 185-189.
MOESZ, G. (1910): A Rétyi-Nyír növényzete. – Magyar Bot. Lapok, 9 (10-12): 333-359.
OROIAN, S. (1995): Vegetaţia forestieră din defileul Mureşului între Topliţa şi Deda. – Marisia, Studia Sci. Nat. Tg. Mures 23/24 (2): 49-71.
OROIAN, S. (1998): Flora şi vegetatia Defileului Mureşului între Topliţa si Deda. – Casa de Editura Mureş, Tg. Mureş, 426 p.
PAX, F. (1908): Grundzüge der Pflanzenverbreitung in den Karpaten II. Leipzig, 231 p.
PÁLFALVI, P. (1995): A Gyimesi hágó környékének (1164 m) florisztikai vázlata. – Múzeumi Füzetek, EME Termtud. Mat. Szakoszt. Közleményei, Kolozsvár (4): 107-114.
PÁLFALVI, P. (2002): A Gyimesek botanikai és etnobotanikai kutatásának története (Keleti-Kárpátok). – Kanitzia 9: 165-180.

PÁLL, ST. (1960): Contribuţii la studiul fitocenologic al pădurilor din raionul Odorhei. – Contrib. Bot. Cluj, 175-193.
PÁLL, ŞT. (1965): Vegetaţia higrofilă din Valea Târnavei Mari. – Contr. Bot. Cluj 207-220.
PÁLL, ŞT. (1969): Contribuţii la cunoaşterea vegetaţiei ruderale din Valea Târnavei Mari (între platoul Vărşag şi depresiunea Odorheiului). – Comun. Bot. SSB, 8.
PEPPLER-LISBACH, C., PETERSEN, J. (2001): Calluno-Ulicetea (G3). Teil. 1: Nardetalia strictae. – Synopsis Pfanzenges. Deutschlands, 1-117.
PITEA, D. E. (1995): Cercetări fitotaxonomice şi fitocenologice din jurul localităţii Band, jud. Mureş cu posibilităţile de valorificare economică a florei spontane. – Marisia, Studia Sci. Nat. Tg. Mureş 23/24 (2): 109-196.
POP, E. (1931): Das Torfmoor von Borsec. – Guide de la VI. Excursion Phytogeogr. Intern.Roumanie, 170.
POP, E. (1960): Mlaştinile de turbă din R. P. România. – Edit. Academiei, Bucuresti, 511 p.
POP, I. (1968): Conspectul asociaţiilor ierboase de pe masivele calcaroase din cuprinsul Carpaţilor româneşti. – Contr. Bot. Cluj, 267-275.
POP, I., CRISTEA, V., HODIŞAN I. (2002): Vegetaţia judeţului Cluj (Studiu fitocenologic, ecologic, bioeconomic şi eco-protectiv). – Contr. Bot. Cluj-Napoca, 1999-2000: 5-254.
POPESCU, A., SANDA, V., OROIAN, S. (1997): Succesiunea vegetaţiei în tăieturile de pădure din teritoriul amenajării hidroenergetice Răstolita. – Marisia, Studia Sci. Nat., Tg. Mureş, XXV, fasc 3: 337-347.
POTT, R. (1992): Die Pflanzengesellschaften Deutschlands. – Verlag Eugen Ulmer, Stuttgart, 427 p.
PUŞCARU-SOROCEANU, EV., SĂNDULEAC, I., ANDREI, M. (1968): Vegetaţia Bazinului Ciuc. – In: Rácz G. (red.) Plantele medicinale din flora spontană a Bazinului Ciuc, 78-100.
PUŞCARU-SOROCEANU, EV., SĂNDULEAC, I., CÎMPEANU, L. (1960): Contribuţii la studiul şi cartarea la scară mare a pajiştilor naturale din Munţii Harghita şi Depresiunea Oltului superior. – Com. de Botanică 1957-1959, 79-91.
RAB, JL (2001): Népi növényismeret a Gyergyói-medencében. – Pallas Akadémia Kiadó, Csikszereda, 237 p.
RÁCZ, G., CSEDŐ, K. (1970): Plantele folosite în medicina populară de pe versanţii vestici ai munţilor Harghita. – Aluta, Muz. Sf. Gheorghe, II: 75-81.
RÁCZ, G., RÁCZ, E. J. (1975): Conservarea florei medicinale din Carpaţii româneşti. – Ocrotirea Naturii 19: 23-28.
RAŢIU FL. (1968): Vegetaţia lemnoasă din complexul mlăştinos eutrof Voşlobeni (jud. Harghita). – Contr. Bot. Cluj, 327-335.
RAŢIU, FL. (1971): Asociaţii de rogozuri înalte din mlaştinile eutrofe ale depresiunii Giurgeului. – Contr. Bot. Cluj, 263-293.
RAŢIU, FL. (1972): Asociaţii de rogozuri scunde din mlaştinile eutrofe ale depresiunii Giugeului. – Contr. Bot. Cluj, 161-186.

RAȚIU, FL., GERGELY, I. (1971): O nouă asociație pentru țara noastră, Calamagrostetum neglectae Tengw. 20. – Studia Univ. Babeș-Bolyai, Cluj, ser. Biol. 2: 5-10.
RAȚIU, FL., GERGELY, I. (1975): Aspecte de vegetație din mlaștinile eutrofe ale bazinului mijlociu al Ciucului. – Contr. Bot. Cluj-Napoca, 105-115.
RAȚIU, FL., GERGELY, I. (1981): Fitocenozele caracteristice mlaștinilor eutrofe din bazinul inferior al Ciucului. – Contr. Bot. Cluj, 59-83.
RESMERIȚA, I. (1975): La classe Nardo-Callunetea Prsg. 1949 dans les Carpathes roumaines. – Doc. Phytosoc. N. S. Lille, I: 265-278.
RODWELL, J. S., SCHAMINÉE, J. H. J., MUCINA, L., PIGNATTI, S., DRING, J. MOSS, D. (2002): The Diversity of European Vegetation. An overview of phytosociological alliances and their relationships to EUNIS habitats. – National Reference Centre for Agriculture, Wageningen, 168 p.
SĂMĂRGHIȚAN, M. (1999): L'association Hieracio transsilvanici-Piceetum Pawlowski et Br.-Bl. 1939 de la Vallée du Gurghiu (Dép. Mureș). – Rev. Roum. Biol.-Biol. Végét., t. 44 (2): 153-163.
SĂMĂRGHIȚAN, M. (2000a): Asociația Polemonio coerulei-Carduetum personatae ass. nova din Valea Gurgiului. – Note Botanice, Tg. Mureș, 26: 61-68.
SĂMĂRGHIȚAN, M. (2000b): Vegetația halofilă de pe Valea Gurghiului. – Marisia, Studia Sci. Nat. Tg. Mureș 26: 169-182.
SĂMĂRGHIȚAN, M. (2003a): Caracterizarea fitocenologică a făgetelor din Valea Gurghiului. – Marisia, Studia Sci. Nat. Tg. Mureș 27: 53-68.
SĂMĂRGHIȚAN, M. (2003b): Pajiști xerofile din clasa Festuco-Brometea de pe Valea Gurghiului. – Marisia, Studia Sci. Nat. Tg. Mureș 27: 99-117.
SĂMĂRGHIȚAN, M. (2003c): Recherches phytosociologiques l'association Junco-Molinietum de la Vallée de Gurghiu (Dépt. Mureș, Roumanie). – La Riserva naturale di Torricchio, Vol. 11 (2): 195-204.
SANDA, V., POPESCU, A., ARCUȘ, M. (1999): Revizia critică a comunităților de plante din România. – Edit. „Tilia Press International", Constanța, 142 p.
SANDA, V., POPESCU, A., STANCU, I. D. (2001): Structura cenotică și caracterizarea ecologică a fitocenozelor din România. – Edit. Conphis, Pitesti, 359 p.
SCHNEIDER-BINDER, E. (1971): Pajiștile xeromezofile din Depresiunea Sibiului și colinele ei marginale. – Studii Comun. Șt. Nat. Muz. Brukenthal, Sibiu, 16: 135-172.
SCHNEIDER-BINDER, E. (1975a): Flora și vegetația depresiunii Sibiului și a dealurilor marginale. – Rezumatul tezei de doctorat, Cluj-Napoca.
SCHNEIDER-BINDER, E. (1975b): Pajiștile xeroterme din ord. Festucetalia valesiacae Br.-Bl. et Tx. 1943 in zona colinelor marginale ale depresiunii Sibiului. – Muz. Brukenthal, Studii și Comun. Șt. Nat. Sibiu, 19: 95-120.
SCHNEIDER-BINDER, E. (1984): Die Waldreben-Laserkraut-Staudenflur (Clematido recti-Laserpitietum latifolii ass. nova) in südsiebenbürgischen Hügelland. – Studii Comun. Șt. Nat., Muz. Brukenthal, Sibiu, 26: 143-159.

SCHNEIDER, E. (1994): Die Bluegrass-Gesselschaften im Hügelland Siebenbürgens. – Siebenbürgisches Archiv, Böhlau, 5: 107-131.
SIMON, T. (1965): Über die Seslerietum rigidae Associationes in Siebenbürgen. – Acta Bot. Acad. Sci. Hung., 11 (1-2): 221-233.
SOÓ, R. (1927): Zur Nomenklator und Methodologie der Pflanzensoziologie. – Gragger-Gedenkbuch, 234-252.
SOÓ, R. (1930a): Vegetációtanulmányok a Déli Hargitán. – Debr. Tisza I. Honism. Biz. Kiadv. 23: 1-26.
SOÓ, R. (1930b): Összehasonlító erdei vegetációtanulmányok az Alpokban, a Kárpátokban és a Magyar Középhegységben. – Erd. Kisérl. 32 (3-4): 439-475.
SOÓ, R. (1940): A Székelyföld növénytakarója. – Debreceni Szemle, 14: 265-276.
SOÓ, R. (1944a): A Székelyföld növényszövetkezeteiről. (Über die Pflanzengeselschaften des Seklerlandes). – Múzeumi Füzetek EME, II.(2): 12-59. (Separatum 48 p.)
SOÓ, R. (1944b): A Radnai-havasok növényvilága. – Erdélyi Nemz. Múz. Növénytárának Kiadv.,1-33.
SOÓ, R. (1949): Les associations végétales de la moyenne Transsylvanie II. Les associations de marais, des prairies et des steppes, – Acta Geobot. Hung. 6 (2): 21-79.
SOÓ, R. (1964): Die regionalen Fagion-Verbende und Gesellschaften Südosteuropas. – Studia Biol. Hung. Akad. Kiadó, Budapest, 104 p.
SOÓ, R. (1969): Die Fagion dacicum-Wälder in Rumänien. – Rev. Roum. Biol. Série Bot. 14: 65-72.
SOÓ, R. (1964-1970): Synopsis systematico-geobotanica florae-vegetationisque Hungariae I-VI. – Edit. Akad., Budapest.
STĂNESCU, V., KOVÁCS J. A. (1979): Depresiunea Braşov - flora şi vegetaţia. – Publ. SNRSS 18: 91-95.
ŞTEFUREAC, TR., KOVÁCS, AL., COLDEA, GH., KÖNTZEY, J. (1982): Importanţa ştiinţifică a două mlaştini turboase din bazinul Uzului (Carpaţii Orientali). – Ocrot. Nat. Med. Inconj., Bucureşti, 27 (2): 51-61.
TĂUBER, F. (1982): Phytozönologische Untersuchungen der extrakarpatischen Rotbuchenwälder der Lippaer Hochebene (Rumänien). – In: Dierschke, H. (Red.): Struktur und Dynamik von Wäldern. Ber. Int. Symp. IV. Rinteln, Vaduz, 1981: 621-629.
TĂUBER, F. (1982): Vegetations-Beiträge zu den Südostkarpaten (I). – Contr. Bot. Cluj-Napoca, 133-142.
TĂUBER, F. (1985): Endemische Phytoassoziationen aus den Rumänischen Karpaten. – Folia Geob. Phytotax., Praha, 20 (4): 1-16.
TĂUBER, F. (1987): Contribuţii la sintaxonomia făgetelor carpato-dacice (Symphyto-Fagetalia subordo novum). – Contr. Bot. Cluj-Napoca, 179-191.
TĂUBER, F. (1992): Contribuţii la sintaxonomia cărpinetelor carpato-dacice (Lathyro-Carpinetalia). – Contr. Bot. Cluj-Napoca, 1991-1992, 15-29.

ŢOPA, E. (1933): Beitrag zur Kenntnis der Vegetation des Runcul bei Tulgheş in den Ostkarpathen. – Bul. Fac. Şt. Cernăuţi, 7.
TÖVISSI, J. (1993): Erdély természetföldrajza. – BGYTF-Nyíregyháza.
TULOGDY, J. (1929): A Székelyföld földrajza. – Emlékkönyv a Székely Nemz. Múz. 50 éves Jubiliumára, Sepsiszentgyörgy, 533-544.
ŢUCRA, I., KOVÁCS, J. A., ROŞU, C., CIUBOTARU, C., CHIFU, TH., NEACŞU, M., BĂRBULESCU, C., CARDAŞOL, V., POPOVICI, D., SIMTEA, N., MOTCĂ, GH., DRAGU, I., SPIRESCU, M., (1987): Principalele tipuri de pajişti din R. S. România. – Centrul de mat. did. prop. agr., Buxureşti, 115 p.
UJVÁROSI, M. (1941): A hargitai Tolvajoshágó környékének növényzeti viszonyai. – Borbasia, IX, 3-5.
ULARU, P. (1972): Cercetări fitocenologice în gorunetele din munţii Perşani. – Bul. Univ. Brasov, seria C, 14: 173-182.
ULARU, P. (1976): Cercetări auspra vegetaţiei ierboase din lunca Oltului. – Cumidava, Brasov, 9 (2): 167-186.
WEBER, H. E., MORAVEC, J., THEURILLAT, J. P. (2000): International Code of Phytosociological Nomenclature. 3rd Ed. – J. Veget. Sci. 11: 739-768.
VIDA, G. (1963): Die zonalen Buchenwälder des ostkarpatischen Florenbezirkes (Transsilvanicum) auf Grund von Untersuchungen im Parâng-Gebirge. – Acta Bot. Acad. Sci. Hung. 9 (1-2): 177-196.
VICOL, E. C., SCHNEIDER-BINDER, E., COLDEA, GH. (1971): Contribuţii la vegetaţia Munţilor Vrancei. – Comun. Bot. XII: 349-358.
VOFKORI, L. (1998): Székelyföld útikönyve I-II. – Cartographia kft., Budapest.
ZÓLYOMI, B. (1939): Felsenvegetationsstudien in Siebenbürgen und im Banat. – Annal. Mus. Nation. Hung. Pars Botanica, 33: 63-135.
ZÓLYOMI, B. (1943): A Kukojszás vegetációtérképe. – Bot. Közlem. XL: 130-131.
ZÓLYOMI, B. (1966): Neue Klassifikation der Felsenvegetation im pannonischen Raum und der angrenzenden Gebiete. Bot. Közlem. 53: 49-54.
ZUIDOFF, A., RODWELL, J. S., SCHAMINÉE, J. H. J. (1995): The Cynosurion cristati Tx. 1947 of central, southern and western Europe overview based on the analysis of individual relevés. – Annali di Botanica, 53: 25-47.

SZÉKELYFÖLD NÖVÉNYTÁRSULÁSAINAK SZÜNTAXONÓMIAI ÁTTEKINTÉSE (KELET ERDÉLY)

(Összefoglalás)

A Kárpát-medence legkeletibb peremvidékén, a tulajdonképpeni Erdélyi-medence és a Keleti-Kárpátok találkozásánál, annak középső és részben DK-i részét magába foglaló történelmi-néprajzi területet a középkor óta a latin nyelvű dokumentumokban nevezik „Terra Siculorum"-nak azaz Székelyföldnek (magyarul), majd Secuimea ill. Ţara Secuilor (románul), Seklerland-nak (németül) és Szeklerland-nak

(angolul). A Székelyföld és a történelmi székely székek (Udvarhely, Csík, Háromszék, Maros) határai a századok során többször is módosultak, míg területe a 19. sz. végén a vármegye rendszerbe szerveződött (Maros-Torda, Udvarhely, Csík, Háromszék, amelyet e tanulmány is követ) illetve a 20. század második felében és jelenleg a Maros, Hargita és Kovászna megyék területére illeszthetőek.

A székelyföldi növénytakaró kialakulását, fejlődését, a növénytársulások szerveződését, elterjedését alapvetően befolyásolta a természeti környezet (Erdélyi-medence, Keleti Kárpátok), az ökológiai tényezők (földtani felépítés, domborzat, vízrajz, talajok, éghajlat) ill. az évszázados antropogén hatások (hagyományos területhasználati, mezőgazdasági és erdő-kitermelési rendszerek) fennmaradása, megannyi tényező mely összességében igen sokszínű kistájak (pl. Sóvidék, Erdővidék, Felcsík, Alcsík, Nyárádmente stb.) sorozatát eredményezte, ezen belül a természetes- és az emberhatású növénytakaró (növénytársulások) megannyi sajátosságával. Jól felismerhető a vegetáció zonalitása is: tölgyesek-, bükkösök- lucosok öve, alhavasi-havasi törpecserjések és gyepek, melyeket intra-zonálisan érdekes ártéri-, sziklai-, halofil-, lápi stb. vegetációs egységek egészítenek ki.

A vegetáció tudományos megismerését a növényföldrajzi kutatások indították el a 20. század elején (PAX 1908, MOESZ 1910) majd a század első felében születtek meg a fitoszociológiai módszerekkel készült feltárások (SOÓ 1930, GUŞULEAC 1932, etc.) amelyek első áttekintő összefoglalását hatvan évvel ezelőtt tette közzé SOÓ (1944). A legnagyobb feltáró munka viszont a múlt század második feléhez kötődik, amikor szerzők sokasága, disszertációk, elméleti és gyakorlati kutató-programokon keresztül több mint 60 dolgozatban jelenítik meg a terület változatos vegetációegységeit ill. azok gazdasági, ipari, környezet- és természetvédelmi alkalmazásait. Elmondható, hogy közel egy évszázadi kutatási tevékenység során óriási mennyiségű és értékes tudományos anyag halmozódott fel, mely azonban a módszerek, elemzések, értékelések rendszerezésében, használatában nem egységes, sőt egyes csoportoknál olyannyira heterogén, hogy igen nehezíti a cönológiai összehasonlításokat, a további feldolgozásokat és a kooperációt.

Igazodva az aktuális európai cönológiai feldolgozások szelleméhez, felhasználva a Nemzetközi Fitoszociológiai Nomenklatúra Kód-ajánlásait és szabályait, kiegészítve a modern monográfiák, publikációk és a saját évtizedes kutatásaink eredményeivel, jelen dolgozatunkban a székelyföldi növénytársulások cönológiai rendszerének összefoglaló áttekintését adjuk. Ebben a munkában a listába felvett cönológiai egységeket igyekeztünk előzetesen kritikailag értékelni, minden felvett növénytársulást egységes kritériumok alapján szemléltetni: a *társulás tudományos neve* (latin nyelven) az aktuális fitocönológiai rendszerben; ezt követi az esetleges szinonima *(Syn.)* név és nevek megadása, felsorolása és ahol szükséges kritikai értékelése a Kód cikkelyei alapján; majd a növénytársulás rövid, tömör jellemzése: termőhelyi-élőhelyi preferenciák alapján *(Ecol.)*, utalva florisztikai összetételükre, a felismerő, diagnosztikus ill. gyakori fajok segítségével *(Flor.)*, a növénytársulás székelyföldi elterjedésére, chorológiájára, táji megjelenésére vonatkozó adatok *(Area)*, valamit ott ahol

szükségesnek éreztük megjegyzéseket, kiegészítéseket tettünk a használatos cönológiai rendszer vagy a nomenklatúra problémáiról *(Note)*.

Az áttekintés anyagát összegezve megállapítható, hogy a területen igen jelentős a növénytársulások diverzitása (kb. 290 tétel), egyesek kiterjedtsége, de a sajátos (síklápok, tőzegmoha-lápok, láprétek, kaszálórétek, hegyi rétek, sziklagyepek, dombvidéki- és kárpáti erdők) cönológiai egységein kivül is általában még pozitív természetességi állapotokat tapasztalunk. Jelzésértékü azonban, hogy a területen is észlelhetők a rohamos környezeti változások, a tájökológiai átalakulások, az emberi hatások mélyülése, az inváziós állományok (pl. *Fallopia x bohemica, Rudbeckia laciniata, Impatiens glandulifera, Solidago gigantea, Helianthus tuberosus*, stb.) terjedése, tényezök melyek fokozzák a természeti növényzeti örökség sebezhetőségét, befolyásolják az eredeti cönológiai struktúrákat, új kihívások elé állitva a tudomány és a gyakorlat embereit.