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Syntaxonomy and nomenclature of the communities of the orders *Calamagrostietalia villosae* and *Adenostyletalia* in Slovakia

JÁN KLIMENT[1], IVAN JAROLÍMEK[2], JOZEF ŠIBÍK[2] & MILAN VALACHOVIČ[2]

[1]Botanical Garden of Comenius University, SK-038 15 Blatnica, Slovak Republic, e-mail: kliment@rec.uniba.sk
[2]Institute of Botany, Slovak Academy of Sciences, Dúbravská cesta 14, SK-845 23 Bratislava, Slovak Republic, e-mail: ivan.jarolimek@savba.sk, jozef.sibik@savba.sk, milan.valachovic@savba.sk

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Abstract: The most important results of the syntaxonomical revision of the communities of the orders *Calamagrostietalia villosae* and *Adenostyletalia alliariae* from the territory of Slovakia are presented: description of the new associations (*Geranio robertiani-Delphinietum elati*) and subassociations (*Festuco picturatae-Calamagrostietum villosae typicum* and *crepidetosum conyzifoliae*, *Vaccinio myrtilli-Calamagrostietum villosae inops* and *avenuletosum versicoloris*), re-evaluation of the syntaxonomical position of the associations (*Petasito-Senecietum nemorensis* HADAČ et al. 1969, *Doronicetum austriaci* HADAČ et al. 1969, *Senecio-Adenostyletum alliariae* HADAČ et al. 1969), resulting in the description of the new subassociations (*Petasito kablikiani-Senecietum nemorensis doronicetosum austriaci* and *crepidetosum mollis*), and in the change of the position of the alliance *Delphinion elati* HADAČ ex HADAČ et al. 1969 into the suballiance of the alliance *Adenostylion alliariae*. Authors suppose the new names for the associations *Chaerophylletum cicutariae* KRAJINA 1933 (*Bryo pseudotriquetri-Chaerophylletum hirsuti*), *Calamagrostietum variae* SILLINGER 1932 (*Geranio sylvatici-Calamagrostietum variae*) and *Calamagrostietum variae carpaticum* SILLINGER 1933 (*Convallario majalis-Calamagrostietum variae*). The subassociations *Athyrietum alpestris* HADAČ 1956 *typicum* W. MATUSZKIEWICZ et A. MATUSZKIEWICZ 1975 and *A. a. deschampsietosum flexuosae* W. MATUSZKIEWICZ

et A. MATUSZKIEWICZ 1975 are ordered within the valid association name *Adenostylo alliariae-Athyrietum alpestris* (ZLATNÍK 1928) JENÍK 1961. Authors also call attention to the illegitimate typification of some names of associations and they supplement description of the less investigated communities.

Keywords: syntaxonomical revision, new syntaxa, mountain tall-herb vegetation, *Mulgedio-Aconitetea,* West Carpathians.

Introduction

The class *Mulgedio-Aconitetea* is represented by three orders in the Slovak part of the Carpathians. The order *Calamagrostietalia villosae* includes tall-herb floriferous subalpine meadows, the order *Adenostyletalia* covers subalpine communities of broad-leaved herbs and ferns, and the order *Petasito-Chaerophylletalia* involves natural tall-herb nitrophilous communities at banks of rivers and streams in the submontane up to supramontane belt.

Yet were published results of partial syntheses and syntaxonomical revisions of the order *Calamagrostietalia villosae* (incl. *Adenostylion alliariae*) from the wider territory of the Tatry Mts. (ŠEFFER, ŠEFFEROVÁ & DÚBRAVCOVÁ 1989), of the order *Petasito-Chaerophylletalia* from Slovakia (KLIMENT & JAROLÍMEK 2002; JAROLÍMEK, KLIMENT & VALACHOVIČ 2002), and the alliance *Calamagrostion arundinaceae* from Slovak part of the Carpathians (KLIMENT & JAROLÍMEK 2004). This work arisen from complex processing of phytocoenological relevés of the class *Mulgedio-Aconitetea* from Slovakia and resumes the most important unpublished results of their syntaxonomical revision.

Material and methods

Results of comparison of 1216 phytocoenological relevés of the class *Mulgedio-Aconitetea* from the Slovak part of the Carpathians are presented. They are partially compared with relevés from similar communities from surrounding mountain ranges (Sudeten, the East Alps). All relevés were obtained by methods of the Zürich-Montpeliér school (BRAUN-BLANQUET 1928, 1964); authors used different scales of cover: 7-degree Braun-Blanquet's scale, their modified 9-degree version (BARKMAN et al. 1964), also 10-degree Domin's scale or 11-degree Domin-Hadač's scale (cf. KLIKA 1948; HADAČ et al. 1969). To obtain better comparability of relevés, before numerical classification relevés were transformed into the ordinal 9-degree scale (VAN DEN MAAREL 1979). Subspecies and more narrowly delimited species by some authors were included into the nearest higher or broadly defined taxa. Taxa determined at tribe level and mosses (excepting equal presence in data set) were excluded. For numerical classification were used program NCLAS from the package of programs SYN-TAX 5 (PODANI 1993). ß-flexible method (ß = -0.25) and Jaccard's, Ružička's and Wishart's coefficients and Euclidean distance were used for processing of data. Obtained hypotheses were evaluated on the basis of comparison of the phytocoenological tables, processed by program FYTOPACK (JAROLÍMEK & SCHLOSSER 1997).

Nomenclature of taxa follows Checklist of non-vascular and vascular plants of Slovakia (MARHOLD & HINDÁK 1998); exceptions are added by author's abbreviation. In the tables subspecies (without the name of species) are marked by asterisk (*). Frequencies of taxa in % (99 = 100%) are supplemented by average value of cover (upper index). Headings to the columns content: abbreviated citation of the source (in the course of unpublished data only name of the author/authors of relevé), number of relevés and their localization on the level of the orographic units follows the map of Databank of fauna of Slovakia in the scale 1: 500 000.

The names of syntaxa in the text are completed by the author's citation when they are used for the first time only.

Diagnostic taxa of the class *Mulgedio-Aconitetea* and lower syntaxa are indicated following synoptic table (KLIMENT, JAROLÍMEK & ŠIBÍK ined.), treating for prepared book Plant communities of Slovakia 4; its shorted form is in the table 6. Other taxa are ordered in harmony with recent relevant publications. In the Tables 1–5 the names of syntaxa are abbreviated as follows: aa *Adenostylion alliariae*, ac *Acerenion pseudoplatani*, ai *Alnion incanae*, ca *Calamagrostion arundinaceae*, cl *Calthion*, cr *Calamagrostion variae*, Cv *Calamagrostietalia villosae*, cv *Calamagrostion villosae*, de *Delphinenion elati*, EA *Epilobietea angustifolii*, ES *Elyno-Seslerietea*, fc *Festucion carpaticae*, fp *Festucion pictae*, Fs *Fagetalia sylvaticae*, fs *Fagion sylvaticae*, fv *Festucion versicoloris*, JT *Juncetea trifidi*, jt *Juncion trifidi*, lv *Loiseleurio-Vaccinion*, MU *Mulgedio-Aconitetea*, Ns *Nardetalia strictae*, Pc *Petasito-Chaerophylletalia*, QF *Querco-Fagetea*, Sc *Seslerietalia coerulae*, SH *Salicetea herbaceae*, tf *Trisetion fusci*, VP *Vaccinio-Piceetea*. Diagnostic taxa of communities are bolded in the tables.

In the description of communities were used following abbreviations: baz.: bazionym, C = characteristic taxon (in the tables), comb. nov. = new combination, art. = article of the International code of phytocoenological nomenclature (ICPN; WEBER, MORAVEC & THEURILLAT 2000), D = differential taxon (in the tables), dom. = dominant species, incl. = inclusive, DGT = diagnostic group of taxa, ined. = ineditus (not published data), nom. corr. = corrected name, nom. ined. = invalidly published (not published) name, OFN = original form of name, p. p. = pro parte (partially), prov. = provisional (name), pseu. = pseudonym, subdom. = subdominant species, syn. = synonym, syntax. syn. = syntaxonomical synonym, transgr., t = transgressive taxon (t – used in the tables), r. = relevé.

Descriptions of communities well-known from literature include only the basic data. More information is given in characteristics of less known and newly described syntaxa.

Results and discussion

Calamagrostion villosae Pawłowski, Sokołowski et Wallisch 1928

***Festuco picturatae-Calamagrostietum villosae* Pawłowski in Pawłowski, Sokołowski et Wallisch 1928 nom. corr. hoc loco**

(Tab. 1, columns 1a, 1b, 1)

OFN: *Calamagrostis villosa-Festuca picta*-Ass. Pawłowski in Pawłowski, Sokołowski et Wallisch 1928

Syn.: *Calamagrostidetum villosae* Szafer, Pawłowski et Kulczyński 1923 (art. 31), *Calamagrostidetum tatricum* Szafer, Pawłowski et Kulczyński 1927 (art. 2b, 34a), *Calamagrostidetum villosae tatricum* Pawłowski in Pawłowski, Sokołowski et Wallisch 1928 (art. 3a, 34a), *Calamagrostidetum villosae tatricum* Krajina 1933 (art. 31), *Calamagrostidetum villosae altherbosum* Sillinger 1933 (art. 34a), *Calamagrostidetum villosae carpaticum* Walas 1933 (art. 34a)

Non: *Calamagrostidetum villosae* Schmid 1923

Differential taxa: *Festuca picturata*, *Acetosa arifolia*, *Adenostyles alliariae*, *Bistorta major*[1], *Gentiana punctata*[1], *Veratrum album* subsp. *lobelianum*[1]

Constant taxa: *Calamagrostis villosa* (dom.), *Anthoxanthum alpinum*, *Avenella flexuosa*, *Homogyne alpina*, *Ligusticum mutellina*, *Oreogeum montanum*, *Potentilla aurea*, *Soldanella carpatica*, *Solidago virgaurea* subsp. *alpestris*, *Vaccinium myrtillus*

[1] against the association *Vaccinio myrtilli-Calamagrostietum villosae*

Nomenclatural type: Pawłowski, Sokołowski & Wallisch 1928, Tab. VIII, r. 9, lectotypus hoc loco

Festuco-Calamagrostietum is the most spread community of the alliance *Calamagrostion villosae*. It prefers moist rocky shoots, bottoms of glacial cirques, stabilized screes, debris cones, and also free places among stands of dwarf pine in subalpine and alpine belts in the Nízke, Západné and Vysoké Tatry Mts. It thrives also at open habitats, exposed to wind. With average number of species (25) it belongs to the group of floristically rich communities in the granite bedrock; the number of taxa in individual relevés varies in large range [11–49 (65)]. Mosses and lichens cover less than 10%, they are often entirely absent.

Detailed description of the association was brought in several published and unpublished works (Pawłowski, Sokołowski & Wallisch 1928; Braun-Blanquet 1930; Krajina 1933; Sillinger 1933; Hadač 1956; Šomšák et al. 1981; Unar, Unarová & Šmarda 1984, 1985; Šefferová 1984; Dúbravcová et al. 1990; Miadok 1995, etc.). Differences in the floristic composition and ecological valence of stands resulted to the distinguishing of following subassociations:

***Festuco picturatae-Calamagrostietum villosae typicum* subass. nov. hoc loco**

(Tab. 1, column 1a)

Nomenclatural type: identical with the type of name of the association

The community doubles floristically poorer stands (20 taxa in average) on

granite bedrock.

***Festuco picturatae-Calamagrostietum villosae crepidetosum conyzifoliae* Hrabovcová ex Kliment et al. subass. nov. hoc loco**

(Tab. 1, column 1b)

Syn: *Calamagrostietum villosae crepidetosum conyzifoliae* Hrabovcová 1976 nom. ined. p. p. (art. 1)

Differential taxa: *Crepis conyzifolia*, *Geranium sylvaticum*, *Hylotelephium argutum*, *Hypericum maculatum*, *Myosotis scorpioides* agg., *Phyteuma spicatum*, *Ranunculus platanifolius*, *Valeriana tripteris*

Nomenclatural type: Pawłowski, Sokołowski & Wallisch 1928, Tab. VIII, r. 13, holotypus

The subassociation is represented by floristically richer stands with average number of taxa 33 [22–49 (69)]. It grows in sunny habitats on mylonites at deeper and moister soils. The stands are usually protected from the wind by rocky walls and by stands of dwarf pine. Against to the typical subassociation this is differentiated by varicoloured flowering herbs demanding more nutritive and moist soils. Occurrence of the species *Carex aterrima*, *Taraxacum alpinum* and *Trisetum fuscum* indicates the relation of these stands to the communities of the alliance *Trisetion fusci*.

Note 1: Pawłowski, Sokołowski & Wallisch (1928: 248) selected the species *Festuca picta* Kit. ex Schult. for the name of the association, which was described in 1814. This name of the species is younger homonym of the name *F. picta* F. Gmelin 1792, hence Pils (1980: 93) replaced it by the name *Festuca picturata* G. Pils. This replacement constrained the correction of the name of association.

Vaccinio myrtilli-Calamagrostietum villosae Sillinger 1933

(Tab. 1, columns 2a, 2b, 2)

Incl.: *Calamagrostidetum villosae arundinacetosum* Br.-Bl. 1930; *Calamagrostidetum villosae vaccinietosum myrtilli* Br.-Bl. 1930; *Myrtilleto-Calamagrostidetum villosae carpaticum pinetosum mugo* Krajina 1933, facies with *Juniperus nana* p. p.

Characteristic taxa: *Avenula versicolor* (transgr.)

Differential taxa: *Vaccinium vitis-idaea*

Constant taxa: *Calamagrostis villosa* (dom.), *Vaccinium myrtillus* (subdom.), *Avenella flexuosa*, *Carex sempervirens* subsp. *silicicola* Holub ined., *Homogyne alpina*, *Ligusticum mutellina*, *Luzula luzuloides*, *Oreogeum montanum*, *Potentilla aurea*

Nomenclatural type: Sillinger 1933: 276, r. 1, lectotypus hoc loco

Vaccinio-Calamagrostietum is usually closed two-layered community of dwarf shrubs and grasses. Its floristic composition, synecology and synchorology were only scarcely mentioned in present publications (Sillinger 1933, Krajina 1933, Miadok 1995); manuscripts held slightly more data (Treskoňová 1972, Kremlová

1974, DÚBRAVCOVÁ et al. 1976, ALTMANNOVÁ 1983). The community is formed beside the dominant *Calamagrostis villosa* by smaller graminoids (*Anthoxanthum alpinum*, *Avenella flexuosa*, *Carex *silicicola*, *Luzula luzuloides*) and small shrubs (*Vaccinium myrtillus*, *V. vitis-idaea*). The most of bright flowering plants are concentrated to the ground layer. Cover of cryptogams varies between 0–10%, it moister habitats it reaches 50%. Stands of the community are recently known from the gaps in dwarf pine stands or above these stands on slopes up to 45° and on the bottoms of glacial cirques in the subalpine to alpine belts in the Nízke, Západné and Vysoké Tatry Mts., approximately between 1530–2000 m a. s. l. Within the association two floristically, synmorphologically, synecologically and syngenetically different subassociations were distinguished:

***Vaccinio myrtilli-Calamagrostietum villosae inops* subass. nov. hoc loco**
(Tab. 1, column 2a)
Nomenclatural type: MIADOK 1995: 38–39, r. 3, holotypus

The subassociation joints floristically poorer (14–23, in average 17 taxa), monotonous small shrubby-grass stands with subdominant to dominant presence of the species *Vaccinium myrtillus*, which prefers elevated parts of the terrain with accumulated raw humus. Prevailingly secondary stands arise after the clearing dwarf pine (KREMLOVÁ 1974, MIADOK 1995). Higher moisture of habitats induces higher frequency of mosses.

***Vaccinio myrtilli-Calamagrostietosum villosae avenuletosum versicoloris* subass. nov. hoc loco**
(Tab. 1, column 2b)
Differential taxa: *Agrostis pyrenaica*, *Anthoxanthum alpinum*, *Avenula versicolor*, *Campanula alpina*, *C. tatrae*, *Carex sempervirens* subsp. *silicicola*, *Festuca supina*, *Hieracium alpinum* agg., *Juncus trifidus*, *Pulsatilla scherfelii*, *Ranunculus pseudomontanus*, *Sempervivum carpathicum* WETTST. ex PRODAN subsp. *carpathicum*, *Trommsdorfia uniflora*, *Viola lutea* subsp. *sudetica*
Nomenclatural type: identical with the type of association

Physiognomically conspicuous flower-rich and species richer plant community with average number of taxa 24 (18–33). Its centre of distribution lies in the lower part of the alpine belt on sunny south oriented (SW–SE) slopes. Floristic composition is similar to the association *Agrostio rupestris-Caricetum sempervirentis* SILLINGER 1933 (alliance *Juncion trifidi* KRAJINA 1933), which is reflected also in the list of differential taxa.
Note 2: Abundant relevé data of the communities with *Calamagrostis villosa* from the Tatry Mts. region contain relatively high number of transition stands between the associations *Festuco picturatae-Calamagrostietum villosae* and *Vaccinio myrtilli-Calamagrostietum villosae.* This fact complicates the mutual differentiation both associations and also unambiguous classification of these stands.

Trisetion fusci KRAJINA 1933

Syn.: *Deschampsion caespitosae* BORZA 1934 (art. 29c, 31), *Phleo alpini-Deschampsion caespitosae* (BORZA 1934) ŞT. CSŰRÖS, GERGELY & M. CSŰRÖS (art. 29c)

Syntax. syn.: *Aconition firmi* KRAJINA 1933

Nomenclatural type: *Rhodiolo-Deschampsietum caespitosae* KRAJINA 1933, lectotypus

The alliance *Trisetion fusci* associates mosaic, chiono- and hygrophilous communities of tall grasses, dicotyledonous herbs and small shrubs. They are among the species richest high mountains communities on granite bedrock. They occur at bottoms of the small terrain depressions with alluvial fine soil and humus near the high mountain torrents and tarns; water flows among rocks deeper below the soil surface. Configuration of terrain causes thick snow layer.

BORZA (1934: 34) described the association *Deschampsietum caespitosae transsilvanicum* from the Retezat Mts. (Romania), and created the new alliance *Deschampsion caespitosae*. ŞT. CSŰRÖS, GERGELY & M. CSŰRÖS (1985: 144) within the order *Adenostyletalia* delimited the alliance *Phleo alpini-Deschampsion* all. nov.; based on synonyms at pages 144 a 155 (*Deschampsion caespitosae* BORZA 34, non HORVATIĆ 30) we deduced, that in fact this is the new name for the alliance *Deschampsion caespitosae* BORZA 1934. Since the both authors qualified as the synonym of both alliances (*Deschampsion caespitosae*, *Phleo alpini-Deschampsion caespitosae*) the name *Trisetion fusci* KRAJINA 1933, in accordance to the art. 29c ICPN these names were illegitimate superfluous names for the alliance *Trisetion fusci*.

KRAJINA (1933) described from the moisture habitats near the small springs and stream banks in subalpine belt of the Vysoké Tatry Mts. the alliance *Aconition firmi.* The alliance covered two associations *Aconitetum firmi* and *Chaerophylletum cicutariae*, with diagnostic taxa *Chaerophyllum hirsutum*, *Chrysosplenium alternifolium*, *Geum rivale*, *Myosotis laxiflora*, *Stellaria nemorum* and *Bryum weigelii*. Syntaxonomical revision proved relevancy of both associations to the alliance *Trisetion fusci* and confirmed the shift of the lectotype, i. e. the association *Aconitetum firmi* (art. 20) by authors ŠEFFER, ŠEFFEROVÁ & DÚBRAVCOVÁ (1989) into this alliance. Consequently, the alliance *Aconition firmi* KRAJINA 1933 we evaluate as syntaxonomical synonym of the alliance *Trisetion fusci*.

Deschampsio caespitosae-Salicetum helveticae (KRAJINA 1933) DÚBRAVCOVÁ et ŠEFFER 1992

(Tab. 2, column 1)

Baz.: *Salicetum lapponum tatricum* KRAJINA 1933 (art. 34a)

Syn.: *Salicetum helveticae* (KRAJINA 1933) DÚBRAVCOVÁ et HRABOVCOVÁ in MUCINA et MAGLOCKÝ 1985 (art. 2b, 31)

Non: *Salicetum helveticae* BRAUN-BLANQUET, PALLMANN et BACH 1954

Nomenclatural type: KRAJINA 1933, Tab. 32, r. 6, lectotypus hoc loco

Dúbravcová & Šeffer (1992) published the new name for the association *Salicetum lapponum tatricum* Krajina 1933. They typified it by the relevé from Hadač (1956, Tab. 24, r. 63). In accordance to the art 39 ICPN their typification is illegitimate (cf. Theurillat & Moravec 1995: 366).

Rhodiolo-Deschampsietum caespitosae Krajina 1933
(Tab. 2, column 2)
Syn.: *Deschampsietum caespitosae tatricum* Hadač 1956 (art. 34a)
Syntax. syn.: *Trisetetum fusci* Krajina 1933
Nomenclatural type: Krajina 1933, Tab. 30, r. 4, lectotypus hoc loco

Syntaxonomical revision confirmed the Šeffer's opinion (Šeffer 1984: 24), that the association *Trisetetum fusci* Krajina 1933 is only part of variability of the association *Rhodiolo-Deschampsietum caespitosae*; by floristic composition it is in harmony with the subassociation *swertietosum alpestris* Šeffer 1991. Following the art. 20 ICPN the association *Rhodiolo-Deschampsietum* represents lectotype of the alliance *Trisetion fusci*.

***Phleo alpini-Deschampsietum caespitosae* (Krajina 1933) Coldea 1983 nom. corr. hoc loco**
(Tab. 2, column 3)
Baz.: *Deschampsietum caespitosae* Krajina 1933 (art. 31)
Syn.: *Aconito firmi-Deschampsietum alpicolae* (Krajina 1933) Hadač in Mucina et Maglocký 1985 (art. 2b)
Nomenclatural type (lectotypus): Krajina 1933, Tab. 33, r. 4 (Unar, Unarová & Šmarda 1985: 55)

The community with prevalence of species *Deschampsia cespitosa* from the subalpine belt of the Vysoké Tatry Mts. described Krajina (1933) with illegitimate name *Deschampsietum caespitosae*. In the latter phytocoenological works from the territory of Slovakia the relevés of this community are the most frequently ordered into the invalidly published new name *Aconito firmi-Deschampsietum alpicolae* (Krajina 1933) Hadač in Mucina et Maglocký 1985. However Coldea (1983) published the name *Deschampsietum caespitosae* Krajina 1933 earlier as a bazionym of the name „*Phleo alpini-Deschampsietum caespitosae* nom. nov.".

Coldea (l. c.) typified the name *Phleo alpini-Deschampsietum caespitosae* by own relevé from the Rodna Mts. in Romania, which is in contradiction with the art. 39a ICPN. The lectotype of this name *Deschampsietum caespitosae* Krajina 1933, selected from the original data was published by Unar, Unarová & Šmarda (1985).

Aconitetum firmi Sokołowski in Pawłowski, Sokołowski et Wallisch 1928
(Tab. 2, column 4)
Syntax. syn.: *Delphinio oxysepali-Aconitetum firmi* Br.-Bl. 1930

Phantom name: *Aconitetum firmi* Pawłowski et Stecki 1927 (Klika 1948, 1955), *Aconitetum firmi* Krajina 1933 (Mucina & Maglocký 1985, Šeffer, Šefferová & Dúbravcová 1989, Miadok 1995)
Nomenclatural type: Pawłowski, Sokołowski & Wallisch 1928, Tab. X, r. 4, lectotypus hoc loco

In the phytocoenological works and surveys from the territory of Slovakia (Šeffer 1984, Mucina & Maglocký 1985, Šeffer, Šefferová & Dúbravcová 1989, Miadok 1995) the stands dominated by the species *Aconitum firmum* on granite bedrock ordered into the association *Aconitetum firmi* Krajina 1933. However, some years earlier the association *Aconitetum firmi* (within the alliance *Adenostylion alliariae*) was validly described by Sokołowski (in Pawłowski, Sokołowski & Wallisch 1928). It was pointed in Krajina (1933: 900–901) by authors citations Pawłowski et Stecki 114, 1927; Sokołowski (Pawłowski, Sokołowski, Wallisch Zesp. rośl. w Tatr. VII, 231, 1928) behind the name of the association, and also by bibliographic reference in the text: „*Diese Assoziation wurde ursprünglich von Pawłowski und Stecki (l. c.) auf Kalkunterlage beschrieben, später von Sokołowski aus dem Morskie-Oko-Tal auf Granit*.". Pawłowski & Stecki (1927: 114–116, Tab. 9) evaluated coenoses with *Aconitum firmum* as vegetation unit without rang (*Aconitum firmum*-Hochstaudenflur; art. 3c), which is quite different in its content from *Aconitum firmum* dominated stands on granite bedrock. Krajina (1933: 901) for the first time identified both associations *Aconitetum firmi* and *Aconitum firmum-Delphinium oxysepalum* Br.-Bl. 1930. Results of syntaxonomical revision confirmed this solution.

***Bryo pseudotriquetri-Chaerophylletum hirsuti* (Krajina 1933) nom. nov. hoc loco**
(Tab. 2, column 5)
Baz.: *Chaerophylletum cicutariae* Krajina 1933: 908 (art. 34a)
Non: *Chaerophylletum cicutarii* Zlatník 1928
Characteristic taxa: *Bryum pseudotriquetrum* (transgr.), *Chiloscyphus polyanthos*, *Plagiomnium medium*
Differential taxa: *Doronicum austriacum*, *Galium anisophyllon*, *Poa pratensis*, *Brachythecium rivulare*, *Bryum weigelii*, *Marchantia polymorpha*, *Philonotis seriata*, *Rhizomnium punctatum*
Constant taxa: *Chaerophyllum hirsutum* [syn.: *Ch. cicutaria* Vill.] (dom.), *Aconitum firmum*, *Alchemilla* sp. div., *Bistorta major*, *Caltha palustris* subsp. *laeta*, *Deschampsia cespitosa*, *Hypericum maculatum*, *Ligusticum mutellina*, *Luzula alpinopilosa* subsp. *obscura*, *Potentilla aurea*, *Senecio subalpinus*, *Stellaria nemorum*
Nomenclatural type: Krajina 1933, Tab. 27, r. 5, lectotypus

Yet relatively recondite and probably neglected community described by Krajina (1933) from slightly sloped (prevailingly up to 5°) banks and alluvium of the stream Mlynica and its tributaries in the Vysoké Tatry Mts., 1500–1650 m a.

s. l. It was scarcely seen also in the Roháčska dolina Valley in the Západné Tatry Mts. (KOMÁRKOVÁ 1964). Island-formed stands grow on slightly acid to slightly alkaline shallow soils. Within the alliance *Trisetion fusci* these stands stay nearest to the stands of associations *Aconitetum firmi* and *Phleo rhaetici-Deschampsietum caespitosae*. They can form mutual transitions. Regularly occurrence of hygrophilous herbs and mosses proves that they are at the same time close to the spring communities. High number of alliance and class, less of order species (Tab. 2) justifies their ordination into the tall-herb communities of the *Mulgedio-Aconitetea*.

Calamagrostion variae SILLINGER 1932 emend. HADAČ et al. 1969
(Tab. 3, columns 1, 2)
Phantom name: *Calamagrostion variae* SILLINGER 1929 (GRABHERR, GREIMLER & MUCINA 1993), *Calamagrostion variae* SILLINGER ex HADAČ 1962 (MUCINA & MAGLOCKÝ 1984), *Calamagrostion variae* SILLINGER ex HADAČ 1963 (MUCINA & MAGLOCKÝ 1985)

The alliance *Calamagrostion variae* consists of floristically and physiognomically very various calciphilous tall-grass communities in steep, sunny, and wind protected slopes and on the bottom of sheer avalanche channels on limestone-dolomite bedrock in the mountain to subalpine belts. In the scarped scarred slopes they form vegetation complex with open stands of relict pine woods. The communities occupy also talus cones in the terminals of rocky channels in the belt of deciduous or mixed forests; in higher elevation they occupy also glades in dwarf pine stands. Common occurrence of several subthermophilous species indicates similar ecology than the alliance *Calamagrostion arundinaceae*.

SILLINGER (1932: 19) described the alliance *Calamagrostion variae* as substrate analogue of the alliance *Calamagrostion villosae* on the carbonate bedrock. This fact result also from communities ordered into the alliance in the original diagnosis (*Calamagrostietum variae*, *Festucetum carpaticae*, *Adenostyletum alliariae calcicolum*). In the original range the alliance partially included also later described alliances *Festucion carpaticae* and *Delphinion elati*. HADAČ et al. (1969: 134) considerably reduced range of the alliance by ordering only the association *Calamagrostietum variae carpaticum* SILLINGER 1933 into the alliance. However, automatic lectotype following the article 20 ICPN is the association *Calamagrostietum variae* SILLINGER 1932. Its original diagnosis represents only phytocoenological relevé.

Localization of stands, properties of the biotope, and contact phytocoenoses determined high presence of calciphilous forest species and elements of divet phytocoenoses. This facts resulted into the ordering of the alliance into the order *Seslerietalia tatrae* HADAČ 1962 (HADAČ 1962, HADAČ et al. 1969) or order *Seslerietalia coerulae* BR.-BL. in BR.-BL. et JENNY 1926 (MUCINA & MAGLOCKÝ 1984, 1985; GRABHERR, GREIMLER & MUCINA 1993).
***Convallario majalis-Calamagrostietum variae* (SILLINGER 1933) nom. nov. hoc loco**

(Tab. 3, column 1)
Baz.: *Calamagrostidetum variae carpaticum* SILLINGER 1933: 167 (art. 34a)
Syn.: *Carlino-Calamagrostietum variae* (SILLINGER 1933) HADAČ in MUCINA et MAGLOCKÝ 1985 (art. 2b)
Incl.: *Carlino-Calamagrostietum variae* (SILLINGER 1933) HADAČ in MUCINA et MAGLOCKÝ 1985 *convallarietosum* MUCINA et MAGLOCKÝ ms. (art. 1, 2b)
Characteristic taxa: Adenophora liliifolia, Anthericum ramosum, Bupleurum falcatum, Knautia slovaca, Polygonatum odoratum, Pulsatilla slavica
Differential taxa: *Achillea stricta, Brachypodium pinnatum, Campanula rapunculoides, Convallaria majalis, Galium schultesii, Securigera varia*
Constant taxa: *Calamagrostis varia (*dom.*), Carduus glaucinus, Cirsium erisithales, Laserpitium latifolium, Rubus saxatilis*
Nomenclatural type: SILLINGER 1933: 168, r. 4, lectotypus

The community with *Calamagrostis varia* is open, medium species rich, with average number of taxa 39 (22–53), and with regular presence of several mesophilic to subxerophilic herbs. Its detailed characteristics published SILLINGER (1933). *Convallario-Calamagrostietum* represents the original natural relict community on the steep, south (SW–SE) oriented limestone-dolomite slopes in the forest belt. It forms vegetation complex together with stands of relict pines woods or cover primary forest-free areas on talus cones. It was found in mountain belt (approx. 760–1220 m a. s. l.) in the mountain ranges Muránska planina, Slovenský raj, Veľká Fatra, Chočské vrchy and Nízke Tatry.

Occurrence of species *Carduus glaucinus*, *Erysimum witmannii*, *Phyteuma orbiculare*, *Pulsatilla slavica*, *Scabiosa lucida*, *Thesium alpinum* indicates the close relation of the association to the communities of the order *Seslerietalia coerulae*. It caused the original classification of the association within the alliance *Seslerion coerulae* BR.-BL. in BR.-BL. et JENNY 1926 (SILLINGER 1933). On the other hand, more or less regular presence of elements of mountain tall-herb communities (*Astrantia major*, *Cirsium erisithales*, *Cyanus mollis*, *Laserpitium latifolium*, *Pimpinella major* subsp. *rhodochlamys*, *Pyrethrum clusii* etc.) joints this association with the class *Mulgedio-Aconitetea*. Within this class it occupies marginal state towards the boundary of the class *Elyno-Seslerietea* BR.-BL. 1948.
Note 3: HADAČ (in MUCINA & MAGLOCKÝ 1985) for the association *Calamagrostietum variae carpaticum* SILLINGER 1933 supposed the new name *Carlino* (*acaulis*)-*Calamagrostietum variae*. *Carlina acaulis* is typical for the stands on rocky slopes (on the talus cones it almost absent), and in the same time it acts as constant companion of the association *Geranio sylvatici-Calamagrostietum variae*. Based on these facts, for the name of the association were selected differential species, used before in the invalidly published name of the subassociation *convallarietosum* (see the synonyms of the association).

***Geranio sylvatici-Calamagrostietum variae* (SILLINGER 1932) nom. nov. hoc loco**
(Tab. 3, column 2)
Baz.: *Calamagrostidetum variae* SILLINGER 1932: 4 (art. 31)

Syn.: *Calamagrostidetum variae altherbosum* Sillinger 1933 (art. 2b, 34a)
Pseu.: *Calamagrostetum variae carpaticum* sensu Hadač et al. 1969 non Sillinger 1933
Incl.: *Carduo glauci-Caricetum tatrorum calamagrostietum variae* Unar in Unar, Unarová et Šmarda 1985; *Anemono narcissiflorae-Laserpitietum latifolii poetosum nemoralis* Kliment 1995, variant with *Calamagrostis varia*
Differential taxa: *Achillea millefolium* subsp. *alpestris, Astrantia major, Campanula elliptica, C. serrata, Carex sempervirens* subsp. *tatrorum, Crepis mollis, Geranium sylvaticum, Helianthemum grandiflorum, Knautia maxima, Leontodon hispidus, Linum extraaxillare, Phleum hirsutum, Primula elatior, Ranunculus nemorosus, Silene vulgaris*
Constant taxa: *Calamagrostis varia (*dom.*), Carlina acaulis, Cirsium erisithales, Galium anisophyllon, Laserpitium latifolium, Leucanthemum vulgare agg., Lotus corniculatus, Phyteuma orbiculare, Pimpinella major* subsp. *rhodochlamys, Scabiosa lucida, Sesleria albicans*
Nomenclatural type: Sillinger 1932: 5, r. 6, holotypus

Opened to almost close, species rich tall grass community (39–62, 48 taxa in average) is shafted by numerous conspicuous flowering herbs. Cover of moss etage does not exceed 30%. Island-formed stands occupy sunny, from wind protected, south (SW–SE) oriented slopes at the foothill of rocky walls near the timber line, in glades within dwarf pine stands, and also in the ends of steep avalanche glens with centre of distribution in the supramontane belt (approx. 1250–1550 m a. s. l.). They are closely related to the tall-grass communities of the alliance *Calamagrostion arundinaceae* in floristic composition and synecology. They also form transition stands with the similar association *Festucetum carpaticae*. Recently the community is known from the limestone-dolomite peripheries of central mountain ranges of the West Carpathians (Veľká Fatra, Chočské vrchy, Nízke, Západné and Belianske Tatry).

The first relevé of the community published Sillinger (1932) with name „nivové *Calamagrostidetum variae*" from the rocky channel in the west slopes of Krakova hoľa Mt., 1540 m a. s. l., within the description of stands with *Festuca carpatica* in the Nízke Tatry Mts.; in the later work (Sillinger 1933) he mentioned it with the name *Calamagrostidetum variae altherbosum*. Phytocoenoses dominated by the species *Calamagrostis varia* from protected habitats in the supramontane to subalpine belt were later ordered to the association *Calamagrostietum variae carpaticum* Sillinger 1933 (Hadač et al. 1969), or they were classified in the level of variant or subassociation within other associations (Unar, Unarová & Šmarda 1984, 1985; Kliment 1995). Syntaxonomical revision approved strong differences in their floristic composition against the association *Calamagrostietum variae carpaticum*, which were appointed by Unar, Unarová & Šmarda (1985) and validity of delimitation of distinctive association.

Festucion carpaticae Bělohlávková et Fišerová 1989
(Tab. 3, column 3)

The community of chiono- and hygrophilous, neutro- to slightly alkaliphilous species dominated by *Festuca carpatica* or scarcely by *Calamagrostis varia*. Stands are species very rich. They prefer protected habitats in steep erosion channels and avalanche glens with thick and long term snow cover in the supramontane to subalpine belt.

The alliance in Slovakia includes only one association *Festucetum carpaticae* Domin 1925. It was from the time of its description gradually ordered into various higher syntaxa. Pawłowski, Sokołowski & Wallisch (1928), Sillinger (1933), Pawłowski (1935, 1956), Klika (1948, 1955) and Hadač (1956) classified this association within the alliance *Calamagrostion villosae*, Braun-Blanquet (1930) and Klika (1931) within the alliance *Seslerion coerulae*, Sillinger (1932) and Šomšák et al. (1980) within the alliance *Calamagrostion variae*, Hadač et al. (1969), Unar, Unarová & Šmarda (1984, 1985), Mucina & Maglocký (1985) and Dúbravcová & Hajdúk (1986) within the alliance *Seslerion tatrae*. This disunity of opinions on classification of the stands of *Festuca carpatica* was stimulus for the re-evaluation of all relevant data including description of the new alliance *Festucion carpaticae* (Bělohlávková & Fišerová 1989). In spite of close floristic and synecological relations between the associations *Geranio sylvatici-Calamagrostietum variae* and *Festucetum carpaticae* (cf. Sillinger 1932), syntaxonomical revision supports their classification into different higher syntaxa and confirms the delimitation of the alliance *Festucion carpaticae*.

Adenostylion alliariae Br.-Bl. 1926

Syn.: *Adenostylion* Luquet 1926 (art. 33), *Adenostylion alliariae* Pawłowski, Sokołowski et Wallisch 1928 p. p. maj. (art. 31), *Adenostylion alliariae* Br.-Bl. 1930 p. p. (art. 31), *Alno-Adenostylion* Br.-Bl. 1948 (art. 29); *Dryopteridi-Athyrion distentifolii* Holub in Holub et al. 1967 (art. 3b)
Syntax. syn.: *Dryopterido-Athyrion distentifolii* (Holub ex Sýkora et Šturs a 1973) Jeník, Bureš et Burešová 1980
Incl.: *Eu-Adenostylion* Klika in Klika et Hadač 1944; *Eu-Adenostylenion alliariae* Sýkora et Šturs a 1973; *Dryopterido-Athyrenion distentifolii* Holub ex Sýkora et Šturs a 1973

The alliance *Adenostylion alliariae* associates mosaic, flowering species rich communities of tall broad-leaved herbs and ferns optimally developed at moist habitats in subalpine belt.

Communities of ferns from the regions of the Sudeten and the West Carpathians have delimited in present works and surveys into the special suballiance *Dryopterido-Athyrenion distentifolii* (Sýkora & Šturs a 1973; Mucina & Maglocký 1984, 1985), or the alliance *Dryopterido-Athyrion distentifolii* (Jeník, Bureš & Burešová 1980; Moravec et al. 1983, 1995; Kočí 2001a). Syntaxonomical revision of the relevés from the Slovak part of the West Carpathians showed that

the associations *Ranunculo platanifolii-Adenostyletum alliariae* and *Adenostylo-Athyrietum alpestris* are linked by many transitions and their classification within separated alliances in this territory is not well-founded.

Hadač et al. (1969) delimited tall herb, chiono- and hygrophilous, hemisciophilous, species rich communities on the limestone bedrock in the subalpine belt of the Belianske Tatry Mts., within the order *Seslerietalia tatrae* Hadač 1962, class *Aconito-Cardaminetea* Hadač 1956, into the particular alliance *Delphinion elati*. Šeffer, Šefferová & Dúbravcová (1989) ordered the alliance similarly into the order *Seslerietalia tatrae* (within the class *Mulgedio-Aconitetea*). Mucina & Maglocký (1984, 1985) the alliance rearranged into the order *Adenostyletalia alliariae*. Other authors, e. g. Karner & Mucina (1993) regard the *Delphinion elati* as the syntaxonomical synonym of the alliance *Adenostylion alliariae*. Syntaxonomical revision of tall herb communities from Slovakia indicated that both mentioned alliances are lack of characteristic species (excepting of the species *Delphinium elatum*), and they are separated only by several acidophilic or (hemi) calciphilous differential species (Tab. 6). Consequently we prefer to classify the former alliance *Delphinion elati* as the well differentiated suballiance within the alliance *Adenostylion*.

***Adenostylenion alliariae* Klika in Klika et Hadač 1944**
OFN: *Eu-Adenostylion* (Krajina 1933) Klika in Klika et Hadač 1944
Differential taxa: *Gentiana punctata, Luzula alpinopilosa subsp. obscura, Oreogeum montanum*

The suballiance *Adenostylenion alliariae* combines species rich and flowery communities of tall broad-leaved herbs and ferns in moist habitats in subalpine (to alpine) belt on granite bedrock.

The name *Eu-Adenostylion* is recondite in the phytocoenological literature. Klika & Hadač (1944) used it in delimitation of the suballiance *Aconitenion firmi*, Sýkora & Štursa (1973) in delimitation of the suballiance *Dryopterido-Athyrenion distentifolii*. In this work the suballiance *Adenostylenion alliariae* relates to the range of the suballiance *Eu-Adenostylion* in Klika & Hadač (1944).

Ranunculo platanifolii-Adenostyletum alliariae (Krajina 1933) Dúbravcová et Hadač ex Kočí 2001

(Tab. 4, columns 1a, 1b, 1)
Baz.: *Adenostyletum alliariae tatricum* Krajina 1933 (art. 34a)
Syn.: *Adenostyletum alliariae silicicolum* Sillinger 1933 (art. 34a), *Ranunculo platanifolii-Adenostyletum alliariae* (Krajina 1933) Dúbravcová et Hadač in Mucina et Maglocký 1985 (art. 2b)
Non: *Adenostyletum alliariae* Br.-Bl. 1930
Characteristic taxa: *Poa granitica*
Differential taxa: *Aconitum firmum*[1], *Doronicum austriacum* (subdom.)[1], *Festuca picturata, Phleum rhaeticum*[1], *Potentilla aurea*[1], *Silene dioica*[1], *Viola biflora*[1]
Constant taxa: *Adenostyles alliariae* (dom.), *Acetosa arifolia, Calamagrostis villosa, Gentiana punctata, Homogyne alpina, Ligusticum mutellina, Luzula*

alpinopilosa subsp. *obscura, Oreogeum montanum, Ranunculus platanifolius, Soldanella carpatica, Veratrum album* subsp. l*obelianum*
[1] against the association *Adenostylo-Athyrietum alpestris*

Species medium rich (22 species per relevé in average), closed and physiognomically patchwork community with prevalence of tall broad-leaved herbs forms islets in surrounding vegetation. Cover of mosses in relation to the conditions of habitat ranges 0 to 90%. Mosaic stands occupy moist sites near the banks of brooks, terrain depressions, talus cones below the wet rocky walls with seeping water, all protected from direct influence of wind. They occur optimally developed in the upper part of subalpine to lower part of alpine belts in the Nízke, Západné and Vysoké Tatry Mts., on the granite bedrock; on the mylonites they form transitions to the association *Aconito firmi-Adenostyletum alliariae*. KRAJINA (1933) and ŠEFFER & ŠEFFEROVÁ (1989) published detailed information on structure, synecology and inside classification of the community.

ŠEFFER & ŠEFFEROVÁ (l. c.) distinguished within the association four subassociations: *Ranunculo platanifolii-Adenostyletum ranunculetosum pseudomontani* Šeffer et Šefferová 1989, *R.-A. deschampsietosum alpicolae* ŠEFFER et ŠEFFEROVÁ 1989, *R.-A. milietosum alpicolae* ŠEFFER et ŠEFFEROVÁ 1989 and *R.-A. athyrietosum distentifolii* (HADAČ 1956) ŠEFFER et ŠEFFEROVÁ 1989. Actual syntaxonomical revision of the communities of the order *Adenostyletalia* from the Slovak part of the West Carpathians confirmed only two of them, namely *R.-A. milietosum alpicolae* (Tab. 4, column 1a) and *R.-A. ranunculetosum pseudomontani* (Tab. 4, column 1b). Subassociation *R.-A. deschampsietosum alpicolae* forms well differentiated variant of the first subassociation (differential species: *Deschampsia cespitosa*, *Primula elatior*, *Brachythecium reflexum*, *Pseudoleskea incurvata*), and stands with *Athyrium distentifolium* were classified as the distinctive association.

Adenostylo alliariae-Athyrietum alpestris (ZLATNÍK 1928) JENÍK 1961
(Tab. 4, columns 2a, 2b, 2)
Baz.: *Athyrietum alpestris* ZLATNÍK 1928 (art. 31)
Syn.: *Athyrietum alpestris tatricum* HADAČ 1956 (art. 34a), *Acetoso alpestris-Athyrietum alpestris* (HADAČ 1956) HADAČ in MUCINA et MAGLOCKÝ 1985 (art. 2b)
Incl.: *Ranunculo platanifolii-Adenostyletum alliariae athyrietosum distentifolii* (HADAČ 1956) ŠEFFER et ŠEFFEROVÁ 1989
Phantom name: *Athyrietum alpestris* HADAČ 1956 emend. W. MATUSZKIEWICZ et A. MATUSZKIEWICZ 1960 (MATUSZKIEWICZ W. & MATUSZKIEWICZ A. 1975, JENÍK, BUREŠ & BUREŠOVÁ 1980)
Non: *Athyrietum alpestris* SCHMID 1923
Characteristic taxa: *Athyrium distentifolium* (transgr., dom.)
Differential taxa: *Oxalis acetosella*, *Rubus idaeus*
Constant taxa: *Adenostyles alliariae* (subdom.), *Acetosa arifolia*, *Calamagrostis villosa*, *Homogyne alpina*, *Milium effusum*, *Veratrum album* subsp. *lobelianum*
Nomenclatural type: JENÍK 1961, Tab. 9, r. 5, neotypus

Monotonous physiognomy of closed and floristically relatively poor (6–26, in average 14 taxa) community of *Athyrium distentifolium* is diversified by several medium tall to tall broad-leaved herbs. Dense crisscross of dried leaves of the dominant fern inhibit development of the moss layer and its cover reaches up maximally to 10%. The community occupies shaded stabilised screes with long term snow and from wind protected by rock walls and by stands of dwarf pine. It occurs mainly in the lower part of subalpine belt of the Západné and Vysoké Tatry Mts. and Krivánska Malá Fatra Mts., in the slightly inclined or steep slopes of various orientation; sparsely it overlaps to the elevation over 1800 m a. s. l. Excepting of several papers (HADAČ 1956; UNAR, UNAROVÁ & ŠMARDA 1984, 1985; ŠEFFER & ŠEFFEROVÁ 1989) the community is known mostly from manuscripts.

Comparison of relevés of the West Carpathians communities with relevés from mountains of high Sudeten (JENÍK 1961, SÝKORA & ŠTURSA 1973, MATUSZKIEWICZ W. & MATUSZKIEWICZ A. 1975, KOČÍ 2001b) using numerical classification showed that analysed stands from the West Carpathians form two subassociations:

***Adenostylo alliariae-Athyrietum alpestris typicum* (W. MATUSZKIEWICZ et A. MATUSZKIEWICZ 1975) comb. nov. hoc loco**

(Tab. 4, column 2a)

Baz.: *Athyrietum alpestris typicum* W. MATUSZKIEWICZ et A. MATUSZKIEWICZ 1975: 93

Nomenclatural type: identical with the name of association

Several layered small stands form the transition to the association *Ranunculo platanifolii-Adenostyletum alliariae*. Transition position of the subassociation is manifested by presence of numerous constant companions of this association (*Gentiana punctata*, *Luzula alpinopilosa*, *Milium effusum*, *Oreogeum montanum*, *Ranunculus platanifolius*, *Soldanella carpatica*).

***Adenostylo alliariae-Athyrietum alpestris avenelletosum flexuosae* (W. MATUSZKIEWICZ et A. MATUSZKIEWICZ 1975) comb. nov. hoc loco**

(Tab. 4, column 2b)

Baz.: *Athyrietum alpestris deschampsietosum* W. MATUSZKIEWICZ et A. MATUSZKIEWICZ 1975: 93

Differential species: *Oxalis acetosella*, *Dryopteris dilatata*, *Gentiana asclepiadea*, *Rubus idaeus*, *Vaccinium myrtillus*

Nomenclatural type: MATUSZKIEWICZ W. & MATUSZKIEWICZ A. 1975, Tab. X, r. 11, lectotypus

Stands of the subassociation occupy moist stabilised granite screes in gaps of the dwarf pine stands or in their margins; secondary communities developing for the long time after the cutting of the fern spruce forests have more or less identical species composition.

Note 4: HADAČ (1956) described his community from the Vysoké Tatry Mts. as the new association *Athyrietum alpestris tatricum*. Comparison of relevés from high mountains of the West Carpathians with the association described from the High

Sudeten Mts. showed high similarity of both communities and resulted to including of Carpathian phytocoenoses into the association *Adenostylo-Athyrietum alpestris* described from the High Sudeten Mts. Compared communities differ only by rare presence of some territorially limited taxa, e. g. *Aconitum firmum*, *Luzula alpinopilosa* subsp. *obscura*, *Soldanella carpatica* and *Aconitum hians* Rchb. W. MATUSZKIEWICZ & A. MATUSZKIEWICZ (1975) and KOČÍ (2001a) also identify both these communities.
Note 5: Names of the subassociations *Athyrietum alpestris typicum* and *Athyrietum alpestris deschampsietosum* published W. MATUSZKIEWICZ & A. MATUSZKIEWICZ (1975) with the illegitimate association name *Athyrietum alpestris* HADAČ 1955 [recte: 1956] (art. 31). Following the art. 30 ICPN, this fact compelled publishing of the new combinations.

***Delphinenion elati* (HADAČ ex HADAČ et al. 1969) stat. nov. hoc loco**
Baz.: *Delphinion elati* HADAČ ex HADAČ et al. 1969: 138
Syn.: *Delphinion elati* HADAČ 1962 (art. 8)
Characteristic taxa: *Delphinium elatum*
Differential taxa: *Chaerophyllum hirsutum, Cortusa matthioli, Epilobium alpestre, Galeobdolon luteum* s. l.*, Luzula sylvatica, Stellaria nemorum*
Nomenclatural type: *Petasito-Senecietum nemorensis* HADAČ et al. 1969, lectotypus

***Aconito firmi-Adenostyletum alliariae* DOMIN 1930 nom. invers. propos.**
(Tab. 4, column 3)
OFN: *Adenostyleto-Aconitetum* DOMIN 1930
Syn.: *Adenostyletum alliariae* BR.-BL. 1930 (art. 31), *Adenostyletum alliariae calcicolum* SILLINGER 1933 (art. 34a), *Delphinietum oxysepali* HADAČ et al. 1969 prov. (art. 3b), *Aconiteto-Adenostyletum* DOMIN 1925 (nom. nud.)
Non: *Senecioni-Adenostyletum alliariae* HADAČ et al. 1969
Characteristic taxa: *Saxifraga rotundifolia*
Differential taxa: *Alchemilla* spec. div., *Deschampsia cespitosa*, *Ligusticum mutellina*[1], *Rhodiola rosea*[1]
Constant taxa: *Adenostyles alliariae* (dom.), *Acetosa arifolia*, *Aconitum firmum*, *Chaerophyllum hirsutum*, *Geranium sylvaticum*, *Hypericum maculatum*, *Primula elatior*, *Senecio nemorensis* agg., *Stellaria nemorum*, *Viola biflora*
[1] against to the communities of the suballiance *Delphinenion elati*
Nomenclatural type: DOMIN 1930: 179, holotypus

Varicoloured, physiognomically conspicuous, close, medium species rich to rich (19–60, average 30 taxa) community form islets stands, alternatively dominated by several tall broad-leaved herbs: *Adenostyles alliariae*, *Aconitum firmum*, *Cicerbita alpina* and *Doronicum austriacum*. Among them stems of *Senecio nemorensis* agg. and stalks of several grasses grow. Cover of mosses varies depend on habitat circumstances in range 0–80%.
The community occupies stabilised soiled screes on the bottom of shallow depressions below the rocky walls and boulder bottoms of occasional brooks. It

rarely occurs also in natural rocky glades within the crest spruce forests in the supramontane belt. The community prevailingly grows on carbonates, less on melaphyres and other basic bedrocks.

The community engaged attention of DOMIN (1930), who published relevé of stand form alpine belt of the Belianske Tatry Mts. with the name *Adenostyleto-Aconitetum*; this valid name was overlooked by later authors. Beside the Belianske Tatry Mts. the community was found also in other mountains (Veporské vrchy, Kriváňska Malá Fatra, Veľká Fatra, Nízke, Západné and Vysoké Tatry), and published with different names by BRAUN-BLANQUET (1930), SILLINGER (1933), HADAČ et al. (1969), DÚBRAVCOVÁ & HAJDÚK 1986 and KLIMENT, BERNÁTOVÁ & OBUCH (1994); from some of mentioned mountains only unpublished relevés exist.

***Petasito kablikiani-Senecietum nemorensis* HADAČ et al. 1969**

(Tab. 4, columns 4a, 4b, 4)

Syn.: *Petasito kablikiani-Senecietum jacquiniani* (HADAČ et al. 1969) HADAČ 1987 (art. 29)

Syntax. syn.: ***Senecioni*-*Adenostyletum alliariae*** HADAČ et al. 1969, *Doronicetum austriaci* HADAČ et al. 1969

Non: *Arunco-Doronicetum austriaci* KORNAŚ in KORNAŚ et MEDWECKA-KORNAŚ 1967

Differantial taxa: *Calamagrostis arundinacea*, *Cardaminopsis halleri*, *Cirsium erisithales*, *Cystopteris fragilis*, *Dactylis glomerata* subsp. *slovenica*, *Hylotelephium argutum*, *Myosotis alpestris*, *Paris quadrifolia*, *Phyteuma spicatum*, *Pimpinella major* subsp. *rhodochlamys*, *Pulmonaria obscura*, *Scrophularia scopolii*, *Trisetum flavescens* subsp. *tatricum*, *Eurhynchium praelongum*, *Mnium spinosum*

Constant taxa: *Senecio nemorensis* agg., *Acetosa arifolia, Bistorta major, Carduus personata, Chaerophyllum hirsutum, Chrysosplenium alternifolium, Delphinium elatum, Epilobium alpestre, Galeobdolon luteum* s. l., *Galium schultesii, Geranium sylvaticum, Geum rivale, Hypericum maculatum, Polygonatum verticillatum, Primula elatior, Silene dioica, Thalictrum aquilegiifolium, Valeriana excelsa* subsp. *sambucifolia, Veratrum album* subsp. *lobelianum, Viola biflora*

Nomenclatural type: HADAČ et al. 1969: 143, r. 263, lectotypus

Several layered, closed, islets-forming stands are notable by their highness, high number of flowering species and species richness (average 46 taxa per relevé). They occupy more or less stabilized limestone screes on steep, sunny to slightly shadow slopes in upper parts of avalanche glens, infrequently also on natural glades in dwarf pine stands in the subalpine belt in the Belianske Tatry Mts., 1575–1725 m a. s. l. Detail characteristics of the community was published by HADAČ et al. (1969).

Authors described from the Dolina Siedmich prameňov Valley in the Belianske Tatry Mts. three closely related associations: *Petasito-Senecietum nemorensis*, *Senecio-Adenostyletum alliariae* and *Doronicetum austriaci*. Syntaxonomical revision of communities of the order *Adenostyletalia* from the territory of Slovakia

proved that all these associations belong to the only one association. Based on constant occurrence of the species *Senecio nemorensis* agg. in all relevés the name *Petasito-Senecietum nemorensis* was retained for this association. According to the actual knowledge above mentioned aggregate taxon is in the tall herb communities in the subalpine belt of the Belianske Tatry Mts. represented almost exclusively by species *Senecio hercynicus*, in the riparian communities dominated by *Petasites kablikianus* also the species *Senecio germanicus* penetrates into high elevations. The variability of originally described communities responds to the subassociations:

***Petasito kablikiani-Senecietum nemorensis doronicetosum austriaci* (HADAČ et al. 1969) comb. nov. et stat. nov. hoc loco**
(Tab. 4, column 4a)
Baz.: *Doronicetum austriaci* HADAČ et al. 1969: 150
Differential taxa: *Doronicum austriacum*, *Filipendula ulmaria*, *Milium effusum*, *Ribes petraeum*
Nomenclatural type: HADAČ et al. 1969: 152, r. 235, lectotypus

The subassociation covers phytocoenoses dominated by the species *Doronicum austriacum* in natural glades in dwarf pine stands.

***Petasito kablikiani-Senecietum nemorensis crepidetosum mollis* subass. nov. hoc loco**
(Tab. 4, column 4b)
Differential taxa: *Crepis mollis*, *Astrantia major*, *Campanula elliptica*, *Daphne mezereum*, *Festuca carpatica*, *Linum extraaxillare*, *Origanum vulgare*, *Petasites kablikianus*, *Pleurospermum austriacum*, *Poa nemoralis*, *Eurhynchium angustirete*
Nomenclatural type: identical with the type of association name

This subassociation in the original delimitation includes beside the association *Petasito-Senecietum nemorensis* also stands of the association *Senecioni-Adenostyletum alliariae*.

Chaerophyllo hirsuti-Cicerbitetum alpinae (KÄSTNER 1938) SÝKORA et HADAČ 1984
(Tab. 4, column 5)
Baz.: *Mulgedietum alpini montanum* KÄSTNER 1938 (art. 34a)
Incl.: *Adenostylo-Athyrietum alpestris petasitetosum albi* KOPECKÝ et HEJNÝ 1971
Non: *Cicerbitetum alpinae* BOLLETER 1921
Differantial taxa: *Cicerbita alpina*, *Athyrium distentifolium*[1], *Leucanthemum rotundifolium*, *Myosotis nemorosa*, *Petasites albus* (subdom.), *Prenanthes purpurea*
Constant taxa: *Aconitum firmum*, *Adenostyles alliariae* (dom.), *Calamagrostis villosa*, *Chaerophyllum hirsutum* (subdom.), *Doronicum austriacum*, *Galeobdolon montanum*, *Gentiana asclepiadea*, *Geranium sylvaticum*, *Luzula sylvatica*, *Oxalis acetosella*, *Ranunculus platanifolius*, *Senecio subalpinus*, *Stellaria nemorum*,

Viola biflora
[1] against the other communities of the suballiance *Delphinenion elati*

Mostly closed, floristically medium rich (19–26, average 22 taxa), physiognomically conspicuous community dominated by the species *Adenostyles alliariae* with higher cover of tall herbs and ferns (*Aconitum firmum*, *Athyrium distentifolium*, *Chaerophyllum hirsutum*, *Cicerbita alpina*, *Doronicum austriacum*, *Petasites albus*), occupies banks of rapid creeks in mountain and upper mountain belt. It was found in the middle and upper part of the Roháčsky potok Stream in the Západné Tatry Mts., 1180–1550 m a. s. l. (KOPECKÝ 1971). Analyzed stands this author ordered into the subassociation *Adenostylo-Athyrietum alpestris petasitetosum albi* KOPECKÝ et HEJNÝ 1971. KOČÍ (2001a) regarded this name as syntaxonomical synonym of the association *Chaerophyllo-Cicerbitetum alpinae*, described from the German side of the Krušné hory Mts. In the original diagnoses of both syntaxa the species *Adenostyles alliariae* was not presented, but in the stands from the Západné Tatry it prevails. Comparison of both communities using numerical classification nevertheless showed their close floristic composition. This fact and identical synecology of both communities permitted ordering of the West Carpathian phytocoenoses into the association *Chaerophyllo-Cicerbitetum alpinae*. Comparison with the other West Carpathian communities of the alliance *Adenostylion alliariae* indicated that the stands from the Roháčsky potok Stream in spite of granite bedrock are markedly similar to the communities of the suballiance *Delphinenion elati* thanks to the sufficient of nutrients in the soil.

***Geranio robertiani-Delphinietum elati* ass. nov. hoc loco**
(Tab. 4, columns 6a, 6b, 6, Tab. 5)
Non: *Delphinietum elati* BEGER ex SUTTER 1978
Characteristic taxa: *Delphinium elatum* (transgr., dom.)
Differantial taxa: *Acer pseudoplatanus*, *Carex muricata*, *Clinopodium vulgare*, *Fragaria vesca*, *Geranium robertianum*, *Urtica dioica*
Constant taxa: *Arabis alpina*, *Carduus personata*, *Chaerophyllum hirsutum* (subdom.), *Chrysosplenium alternifolium*, *Heracleum sphondylium*, *Senecio nemorensis* agg., *Silene dioica*, *Valeriana excelsa* subsp. *sambucifolia*, *Viola biflora*
Nomenclatural type: Tab. 5, r. 5 holotypus

Two or three layered phytocoenoses dominated by the species *Delphinium elatum*. This species together with the subdominant *Chaerophyllum hirsutum* and other tall herbs (*Aconitum variegatum*, *Carduus personata*, *Heracleum sphondylium*, *Senecio nemorensis* agg., *Urtica dioica*, *Valeriana *sambucifolia*) determines the maximal height of stands 180–200 cm. Species *Arabis alpina*, *Chrysosplenium alternifolium*, *Geranium robertianum*, *Silene dioica*, *Stellaria nemorum* and *Viola biflora* form the ground and medium layer. Cover of mosses varies from 10 to 90%. The community is species rich (average 41, min. 24, max. 57 species per relevé).

It occupies boulder colluviums, fixed scree cones and gravel alluviums along

the mountain torrents. Inverse character of microclimate permits occurrence of the community in deep valleys and below the rocky walls. Habitats are partially shaded; soils are skeletal, humus-rich and moist.

According to the actual information the association *Geranio-Delphinietum elati* prefers limestone and dolomite regions in the mountain and upper mountain belt in the West Carpathians. Phytocoenological relevés come from glens, ravines and banks of mountain brooks in the Muránska planina Mts. (JAROLÍMEK, KOCHJAROVÁ, TURIS, VALACHOVIČ ined.), Krivánska Malá Fatra Mts. (JAROLÍMEK, KRAJČIOVÁ ined.), Veľká Fatra Mts. (MUCINA ined.), and v Nízke Tatry Mts. (JAROLÍMEK, MAGLOCKÝ, MUCINA ined.).

Different floristic composition and synecology of stands resulted into the classification of two subassociations:

Geranio robertiani-Delphinietum elati orobanchetosum flavae **subass. nov. hoc loco**

(Tab. 4, column 6a; Tab. 5, r. 1–5)

Differential taxa: *Orobanche flava*, *Crepis paludosa*, *Impatiens noli-tangere*, *Myosotis nemorosa*, *Petasites albus*, *P. kablikianus*, *Roegneria canina*, *Stachys sylvatica*, *Stellaria nemorum*

Nomenclatural type: Tab. 5, r. 5, holotypus

This floristically poorer community (24–40, average 35 taxa) has higher number of wetland species. Its stands are in close relation to the riparian communities of the alliance *Petasition officinalis* SILLINGER 1933 by their floristic composition and synecology.

Geranio robertiani-Delphinietum elati ranunculetosum platanifolii **subass. nov. hoc loco**

(Tab. 4, column 6b; Tab. 5, r. 6–10)

Differential species: *Ranunculus platanifolius*, *Cirsium erisithales*, *Galeobdolon montanum*, *Galium schultesii*, *Geranium sylvaticum*, *Luzula luzuloides*, *Polygonatum verticillatum*

Nomenclatural type: Tab. 5, r. 7, holotypus

Stands of the subassociation contain higher number of forest species and species from mountain alluvium vegetation; they have average number of taxa 47 (39–57) per relevé.

Note 6: Beside some rarely occurred species only several constant companions, such as *Chaerophyllum hirsutum*, *Heracleum sphondylium*, *Silene dioica*, *Urtica dioica* and *Viola biflora* are common for both associations *Geranio-Delphinietum elati* and *Delphinietum elati* BEGER ex SUTTER 1978. The last one was described from the Swiss Alps, 1350–1760 m a. s. l. (SUTTER 1978). On the contrary, comparison of both associations uncovered evident differences between them in their floristic composition. West Carpathian phytocoenoses positively differ from the Alpine ones by occurrence of species *Aconitum variegatum*, *Cardamine*

impatiens, *Carex muricata*, *Chrysosplenium alternifolium*, *Clinopodium vulgare*, *Cystopteris montana*, *Digitalis grandiflora*, *Epilobium montanum*, *Fragaria vesca*, *Galium schultesii*, *Geranium robertianum*, *Lathyrus vernus*, *Myosotis scorpioides* agg., *Orobanche flava*, *Oxalis acetosella*, *Petasites albus*, *P. kablikianus*, *Pulmonaria obscura*, *Roegneria canina* and *Stachys sylvatica*. At the same time numerous group of taxa differs the Alpine community against the stands dominated by *Delphinium elatum* in the West Carpathians: *Acetosa arifolia*, *Achillea macrophylla* L., *Aconitum paniculatum* Lam., *A. platanifolium* Degen ex Gáyer, *Adenostyles alliariae*, *A. glabra* (Mill.) DC., *Alchemilla* spec. div., *Campanula scheuchzeri* Vill., *Carex ferruginea* Scop., *Centaurea nervosa* Willd., *Cirsium oleraceum*, *Crepis pyrenaica* (L.) Greuter, *Epilobium alpestre*, *Festuca pratensis*, *Geranium sylvaticum*, *Imperatoria ostruthium* L., *Leucanthemum adustum* (W. D. J. Koch) Gremli, *Lilium martagon*, *Phyteuma ovatum* Honck., *Poa hybrida* Gaudin, *Polystichum aculeatum*, *Pulsatilla alpina* (L.) Delarbre, *Ranunculus serpens* Schrank, *Rosa pendulina*, *Saxifraga rotundifolia*, *Veratrum album*, *Veronica latifolia*.

Daphno mezerei-Dryopteridetum filicis-maris Sýkora et Šťursa 1973

Two or three layered, more or less closed and species rich community is typical by dense cover of leaves of the species *Dryopteris filix-mas* with length up to 90 cm. In the shade of leaves of dominant grows numerous smaller herbs. Physiognomy of stands is diversified by medium to tall flowering herbs (*Adenostyles alliariae*, *Carduus personata*, *Digitalis grandiflora*, *Gentiana asclepiadea*, *Pyrethrum clusii*, *Senecio hercynicus*, *Silene dioica*, *Valeriana excelsa* subsp. *sambucifolia*). Mosses are presented scarcely on crop out rocks and boulders.

The community occupies more or less stabilized screes below the top rock walls, near the tree limit in the supramontane belt. Till now it was known only from the Sudeten Mountains Krkonoše, Jizerské hory, Králický Sněžník and Hrubý Jeseník. Sýkora & Šťursa (1973) described it based on 22 phytocoenological relevés and detailed study of its ecology. In Slovakia the first relevé comes from the Mačacia Mt. (1410 m) on melaphyre bedrock:

Locality: Nízke Tatry Mts., Mačacia Mt., stabilized scree with soil in the ravine below rock walls, above the forest; 1310 m a. s. l., WNW, 40 °, 4 × 6 m, E_1: 95 %, E_0: do 5 %, 48°57´33,5˝ north latitude, 19°52´35,7˝ east longitude, August 5, 2003, J. Kliment & P. Turis.

E_1: *Dryopteris filix-mas* 4, *Acetosa arifolia* 2a, *Calamagrostis arundinacea* 2a, *Angelica sylvestris* 1, *Digitalis grandiflora* 1, *Galeobdolon luteum* 1, *Senecio hercynicus* 1, *Stellaria nemorum* 1, *Valeriana excelsa* subsp. *sambucifolia* 1, *Anthriscus sylvestris* +, *Bromus benekenii* +, *Campanula rapunculoides* +, *Cardaminopsis halleri* +, *Carduus personata* +, *Cicerbita alpina* +, *Clinopodium vulgare* +, *Daphne mezereum* +, *Epilobium montanum* +, *Fragaria vesca* +, *Galeopsis pubescens* +, *Galium schultesii* +, *Gentiana asclepiadea* +, *Geranium robertianum* +, *G. sylvaticum* +, *Heracleum sphondylium* +, *Hordelymus europaeus* +, *Hylotelephium argutum* +, *Hypericum maculatum* +, *Luzula luzuloides* +, *Melica nutans* +, *Milium effusum* +, *Myosotis sylvatica* +, *Oxalis acetosella* +, *Paris quadrifolia* +, *Poa chaixii* +, *P. nemoralis* +, *Pulmonaria obscura* +, *Pyrethrum clusii* +, *Rosa pendulina* +, *Rubus idaeus* +, *Silene dioica* +, *Solidago virgaurea* subsp.

minuta +, *Thlaspi caerulescens* +, *Urtica dioica* +, *Veronica chamaedrys* +, *Adenostyles alliariae* r, *Cardamine impatiens* r, *Carex muricata* r, *Crepis mollis* r, *Polygonatum verticillatum* r, *Scrophularia scopolii* r.

The association *Daphno-Dryopteridetum* was ordered by authors – within the alliance *Adenostylion alliariae* – into the suballiance *Dryopterido-Athyrenion distentifolii*, later into the individual alliance *Dryopterido-Athyrion distentifolii* (Moravec et al. 1995, Kočí 2001a, b). Comparison of relevant West Carpathian communities of the order *Adenostyletalia* and original diagnose of the association *Daphno-Dryopteridetum* indicated, that analysed stand from the Nízke Tatry Mts. in spite of dominance of the species *Dryopteris filix-mas* with respect to its floristic composition clearly resembles to the communities of the suballiance *Delphinenion elati*. Within the association it is the closest to the typical variant, which presents optimally developed phytocoenoses in drier and warmer habitats (cf. Sýkora & Štursa 1973, Tab. 1, r. 8–22).

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Sources to tables:

(used abbreviations: BT=the Belianske Tatry Mts.; KMF=the Krivánska Malá Fatra Mts.; MP=the Muránska planina Mts.; NT=the Nízke Tatry Mts.; VF=the Veľká Fatra Mts.; VT=the Vysoké Tatry Mts.; ZT= the Západné Tatry Mts.;

Tab. 1, the alliance *Calamagrostion villosae*

1a Komárková 1964, Tab. 30 (*Calamagrostietum villosae*), r. 2, ZT; Kremlová 1974, Tab. inter p. 48–49 (*Calamagrostietum villosae*), r. 3–6, 8, 9, ZT; Dúbravcová 1976, Tab. 10 (*Calamagrostietum villosae*), r. 4, 6–11, ZT; Dúbravcová et al. 1976, Tab. 18 (*Calamagrostietum villosae*), r. 9, 11, 13, ZT; Hrabovcová 1976, Tab. 9 (*Calamagrostietum villosae*), r. 2, 3, ZT; Králik 1979, Tab. 11 (*Calamagrostietum villosae*), r. 1, 2, 5, 7, ZT; Unar, Unarová & Šmarda 1984, Tab. 31 (*Calamagrostietum villosae*), r. 1, 2, 4, 5, ZT; Dúbravcová et al. 1990, Tab. 20 (*Festuco pictae-Calamagrostietum villosae*), r. 5, 6, ZT; Braun-Blanquet 1930: 20 (*Calamagrostis villosa-Festuca picta*-Ass.), 1 r., VT; Krajina 1933, Tab. 29 (*Calamagrostidetum villosae*), r. 5–8, 10, VT; Hadač 1956, Tab. 17 (*Calamagrostietum villosae*), r. 6, VT; Šomšák et al. 1981, Tab. 10 (*Calamagrostietum villosae*), r. 2, 5, VT; Šefferová 1984, Tab. 3 (*Festuco pictae-Calamagrostietum villosae*), r. 1–13, VT; Dúbravcová et al. 1990, Tab. 20, r. 1–4, 7, 12–15, 17, VT; Sillinger 1933: 276 (*Calamagrostis villosa-Vaccinium myrtillus*-Ass.), r. 2, 4, 6, NT; Treskoňová 1972, Tab. inter p. 68–69 (*Calamagrostietum villosae altherbosum*), 6 r., NT; Altmannová 1983, Tab. 19 (*Calamagrostietum villosae*), 9 r., NT; Dúbravcová 1983: 32, 1 r. (*Festuco pictae-Calamagrostietum villosae*), NT; Fajmonová 1987: 1–2, r. 1 (*Festuco pictae-Calamagrostietum villosae*), NT; Miadok 1995: 37 (*Festuco pictae-Calamagrostietum villosae*), r. 2, 4, NT.

1b Komárková 1964, Tab. 30 (*Calamagrostietum villosae*), r. 3, ZT; Kremlová 1974, Tab. inter p. 48–49 (*Calamagrostietum villosae*), r. 10, ZT; Dúbravcová 1976, Tab. 10 (*Calamagrostietum villosae*), r. 5, 12–14, ZT; Dúbravcová et al. 1976, Tab. 18 (*Calamagrostietum villosae*), r. 12, 21, 22, ZT; Hrabovcová 1976, Tab. 9 (*Calamagrostietum villosae*), r. 10, ZT; Králik 1979, Tab. 11 (*Calamagrostietum villosae*), r. 3, 4, 6, ZT; Pawłowski, Sokołowski & Wallisch 1928, Tab. VIII, r. 13, 14, VT; Krajina 1933, Tab. 29 (*Calamagrostidetum villosae*), r. 1–4, 11, VT; Hadač 1956, Tab. 17 (*Calamagrostietum villosae*), r. 1–5, 7–10, VT; Šefferová 1984, Tab. 3 (*Festuco pictae-Calamagrostietum villosae*), r. 14–20, VT; Šefferová 1984, Tab. 3, r. 21–24 (*Rumici scutati-Calamagrostietum villosae* prov.), VT; Dúbravcová et al. 1990, Tab. 20 (*Festuco pictae-Calamagrostietum villosae*), r. 10, 16, 18, 19, VT; Dúbravcová et al. 1990, Tab. 20, r. 8, 9, BT; Altmannová 1983, Tab. 13 (*Vaccinio myrtilli-Calamagrostietum villosae*), r. 1, NT; Dúbravcová 1983: 33 (*Festuco pictae-Calamagrostietum villosae*), 1 r., NT.

2a Kremlová 1974, Tab. inter p. 34–35 (*Calamagrostis villosa-Vaccinium myrtillus*-Ass.), r. 2–4, Tab. inter p. 48–49 (*Calamagrostietum villosae*), r. 1, ZT; Dúbravcová 1976, Tab. 10 (*Calamagrostietum villosae*), r. 1–3, ZT; Dúbravcová et al. 1976, Tab. 18 (*Calamagrostietum villosae*), r. 28, 33, 36, ZT; Krajina 1933, Tab. 62 (*Myrtilleto-Calamagrostidetum villosae carpaticum*), r. 2, VT; Šomšák et al. 1981, Tab. 10 (*Calamagrostietum villosae*), r. 3, VT; Miadok 1995: 37 (*Festuco pictae-Calamagrostietum villosae*), r. 3, p. 38–39 (*Vaccinio myrtilli-Calamagrostietum villosae*), r. 1–3, NT.

2b Komárková 1964, Tab. 30 (*Calamagrostidetum villosae*), r. 1, 4, 5; ZT; Kremlová 1974, Tab. inter p. 34–35 (*Calamagrostis villosa-Vaccinium myrtillus*-Ass.), r. 1, Tab. inter p. 48–49 (*Calamagrostietum villosae*), r. 2, 7, ZT; Dúbravcová et al. 1976, Tab. 18 (*Calamagrostietum villosae*), r. 20, 34, 35, 37, ZT; Hrabovcová 1976, Tab. 9 (*Calamagrostietum villosae*), r. 4–9, ZT; Králik 1979, Tab. 11 (*Calamagrostietum villosae*), r. 8, 9, ZT; Unar, Unarová & Šmarda 1984, Tab. 31 (*Calamagrostietum villosae*), r. 3, ZT; Braun-Blanquet 1930: 21 (*Calamagrostidetum villosae arundinacetosum*), 1 z, VT; Krajina 1933, Tab. 29 (*Calamagrostidetum villosae*), r. 9, VT; Šomšák et al. 1981, Tab. 10 (*Calamagrostietum villosae*), r. 1, 4, VT; Dúbravcová et al. 1990, Tab. 20 (*Festuco pictae-Calamagrostietum villosae*), r. 11, VT; Sillinger 1933: 276 (*Calamagrostis villosa-Vaccinium myrtillus*-Ass.), r. 1, 3, 5, NT; Treskoňová 1972: 49 (*Calamagrostis villosa-Vaccinium myrtillus*-Ass.), 7 r., NT; Altmannová 1983, Tab. 13 (*Vaccinio myrtilli-Calamagrostietum villosae*), r. 2–9, NT; Dúbravcová 1983: 32 (*Festuco pictae-Calamagrostietum villosae*), 1 r., NT; Fajmonová 1987: 2, r. 2 (*Vaccinio myrtilli-Calamagrostietum villosae*), NT; Miadok 1995: 37 (*Festuco pictae-Calamagrostietum villosae*), r. 1, NT.

3 Komárková 1964, Tab. 36, r.1–3 (*Salicetum lapponum*), ZT; Horák 1971, Tab. 2, r. 51, 52 (*Salicetum lapponae-helveticum*), ZT; Dúbravcová & Šeffer 1992, Tab. 1 (*Calamagrostio villosae-Salicetum helveticae*), r. 2, 4, 5, 7–9, 11–14, ZT, r. 10, VT.

Tab. 2, the alliance *Trisetion fusci*

1 Kremlová 1974, Tab. inter p. 84–85 (*Salicetum lapponum tatricum*), 7 r., ZT; Krajina 1933, Tab. 32 (*Salicetum lapponae tatricum*), 6 r., VT; Hadač 1956, Tab. 24 (*Salicetum lapponum tatricum*), 3 r., VT; Dúbravcová & Šeffer 1992, Tab. 1 (*Deschampsio caespitosae-Salicetum helveticae*), r. 15, 16, 18–20, 23, 30, VT.

2 Komárková 1964, Tab. 34 (*Deschampsietum caespitosae tatricum*), r. 1, 2, p. 100 (*Rhodiolo-Deschampsietum caespitosae*), 1 r., ZT; Kremlová 1974, Tab. inter p. 81–82 (*Rhodioleto-Deschampsietum caespitosae*), 4 r., ZT; Dúbravcová et al. 1976, Tab. 20 (*Rhodiolo-Deschampsietum caespitosae*), r. 5–11, Tab. 21 (*Trisetetum fusci*), ZT; Krajina 1933, Tab. 30 (*Rhodioleto-Deschampsietum caespitosae*), 4 r., Tab. 31

(*Trisetetum fusci*), 6 r., VT; HADAČ 1956: 52 (*Deschampsietum caespitosae tatricum*), 1 r., p. 53 (*Rhodioleto-Deschampsietum caespitosae*), 1 r., VT; ŠEFFER 1984, Tab. 2 (*Aconito firmi-Deschampsietum alpicolae*), r. 8, VT; ŠEFFER 1991, Tab. 1 (*Rhodiolo-Deschampsietum caespitosae*), r. 2–20, VT; MIADOK 1995: 41 (*Trisetetum fusci*), 1 z, NT.

3 KOMÁRKOVÁ 1964, Tab. 34 (*Deschampsietum caespitosae tatricum*), r. 3, ZT; HORÁK 1971, Tab. 4 (*Deschampsia caespitosa*-typ, *Aconitum firmum-Viola biflora*-subtyp), r. 6–9, ZT; KREMLOVÁ 1974, Tab. inter p. 79–80 (*Deschampsietum caespitosae tatricum*), 7 r., ZT; DÚBRAVCOVÁ et al. 1976, Tab. 23 (*Deschampsietum caespitosae tatricum*), r. 1–5, ZT; Krajina 1933, Tab. 33 (*Deschampsietum caespitosae*), 9 r., VT; ŠEFFER 1984, Tab. 2 (*Aconito firmi-Deschampsietum alpicolae*), r. 1–3, 6, 7, VT; MIADOK 1995: 40 (*Deschampsietum caespitosae*), 3 r., NT.

4 KOMÁRKOVÁ 1964, Tab. 28 (*Chaerophylletum cicutariae*), r. 1, ZT; BRAUN-BLANQUET 1930: 17 (*Aconitum firmum-Delphinium oxysepalum*-Ass.), 2 r., VT; KRAJINA 1933, Tab. 26 (*Aconitetum firmi*), 8 r., VT; ŠEFFER 1984, Tab. 2 (*Aconito firmi-Deschampsietum alpicolae*), r. 4, 5, Tab. 4 (*Aconitetum firmi*), 6 r., VT; ALTMANNOVÁ 1983: 92–93 (*Aconitetum firmi*), 2 r., NT; FAJMONOVÁ 1987: 3–4, r. 7 (*Aconitetum firmi*), NT; MIADOK 1995: 42 (*Aconitetum firmi*), 2 r., NT; Jarolímek, Dúbravcová, Šibík ined., 1 r., KMF; Jarolímek ined., 1 r., KMF, 3 r. NT; Jarolímek, Alexyová ined., 3 r., NT; Jarolímek, Kochjarová ined., 1 r., VT; Valachovič ined., 1 r., VT.

5 KOMÁRKOVÁ 1964, Tab. 28 (*Chaerophylletum cicutariae*), r. 3, ZT; KRAJINA 1933, Tab. 27 (*Chaerophylletum cicutariae*), 6 r., VT.

Tab. 3, the alliance *Calamagrostion variae* (1, 2), and *Festucion carpaticae* (3)

1 SILLINGER 1933: 169 (*Calamagrostietum variae carpaticum*), 12 r., NT; ŠMARDA 1970, Tab. 5 (*Calamagrostietum variae carpaticum*), r. 1–3; Slovenský raj Mts.; Mucina ined., 1 r., Chočské vrchy Mts., 1 r., VF, 8 r., NT, 5 r., MP; Mucina & Valachovič ined., 7 r., MP.

2 KLIMENT 1995, Tab. 1 (*Anemono narcissiflorae-Laserpitietum latifolii*), r. 21–23, VF; SILLINGER 1932, Tab. 5, r. 6 (*Calamagrostidetum variae*), NT; UNAR, UNAROVÁ & ŠMARDA 1984, Tab. 19 (*Carduo glauci-Caricetum tatrorum calamagrostietosum variae*), 5 r., ZT; HADAČ et al. 1969: 137–138 (*Calamagrostetum variae carpaticum*), 4 r., BT; Mucina ined., 1 r., Chočské vrchy Mts.; Kliment ined., 8 r., VF; Kliment & Bernátová ined., 1 r., VF; Kliment & Turis ined., 3 r., NT, 1 r., BT.

3 ŠIBÍK 2003: 63, r. 65, KMF; VESELÁ 1992, Tab. 2, r. 61, 62, VF; SILLINGER 1932: 5, r. 1–5, NT, r. 7, VF; ŠOMŠÁK et al. 1980, Tab. 4, 4 r., ZT; UNAR, UNAROVÁ & ŠMARDA 1984, Tab. 21, 10 r., Tab. 26 (*Senecio-Adenostyletum alliariae*), 3 r., ZT; DÚBRAVCOVÁ & HAJDÚK 1986: 46, 1 r., ZT; HADAČ 1956, Tab. 18, 3 r., VT; DOMIN 1925: 8, 11 r., BT; PAWŁOWSKI & STECKI 1927, Tab. 8, r. 6, BT; HADAČ et al. 1969: 118, 5 r., BT; ŠMARDA et al. 1971, Tab. 12, 6 r., BT; BĚLOHLÁVKOVÁ & FIŠEROVÁ 1989, Tab. 4, r. 2, 3, Chočské vrchy Mts., r. 4, VF, r. 5, 6, NT, r. 7–16, ZT; Jarolímek ined., 2 r., KMF; Jarolímek & Krajčiová ined., 3 r., KMF; Kliment & Šibík ined., 8 r., KMF; Šibík & Krajčiová ined., 6 r., KMF; Kliment ined., 1 r., VF; Petrík ined., 2 r., ZT, 4 r., BT; Kliment, Turis & Valachovič ined., 2 r., BT.

Tab. 4, the alliance *Adenostylion alliariae*

1a KOMÁRKOVÁ 1964, Tab. 32 (*Adenostyletum alliariae*), r. 1, 2, ZT; KREMLOVÁ 1974, Tab. inter p. 44–45 (*Adenostyletum alliariae*), r. 1, 4, ZT; DÚBRAVCOVÁ et al. 1976, Tab. 19 (*Adenostyletum alliariae tatricum*), r. 5–7, 13, 18, ZT; HRABOVCOVÁ 1976, Tab. 11 (*Adenostyletum alliariae*), 7 r., ZT; KRÁLIK 1979, Tab. 12 (*Adenostyletum alliariae*), r. 2–5, ZT; KRAJINA 1933, Tab. 28 (*Adenostyletum alliariae tatricum*), r. 1–3, VT; HADAČ 1956, Tab. 19 (*Adenostyletum alliariae tatricum*), 5 r., VT; ŠOMŠÁK et al. 1981: 197

(*Adenostyletum alliariae tatricum*), r. 1, VT; Šeffer & Šefferová 1989, Tab. 1 (*Ranunculo platanifolii-Adenostyletum alliariae*), r. 10–15, 25, VT; Sillinger 1933: 260 (*Adenostyletum alliariae*), r. 3, 4, NT; Treskoňová 1972, Tab. inter p. 72–73 (*Adenostyletum alliariae*), 4 r., NT; Svinčák 1975, 1 r. (*Adenostyles alliariae*-typ), NT; Altmannová 1983, Tab. 21 (*Adenostyletum alliariae*), r. 1–3, 5, 7, 8, 10, NT; Jarolímek & Kochjarová ined., 3 r., VT; Šoltésová & Paclová ined., 1 r., VT; Valachovič ined., 1 r., VT, 1 r., NT.

1b Komárková 1964, Tab. 32 (*Adenostyletum alliariae*), r. 3, 4, ZT; Kremlová 1974, Tab. inter p. 44–45 (*Adenostyletum alliariae*), r. 2, 3, ZT; Dúbravcová et al. 1976, Tab. 19 (*Adenostyletum alliariae tatricum*), r. 9, 12, ZT; Králik 1979, Tab. 12 (*Adenostyletum alliariae*), r. 1, ZT; Krajina 1933, Tab. 28 (*Adenostyletum alliariae tatricum*), r. 4–8, VT; Šomšák et al. 1981: 197 (*Adenostyletum alliariae tatricum*), r. 2, VT; Háberová & Šoltésová 1989, Tab. 2 (*Ranunculo platanifolii-Adenostyletum alliariae*), 2 r., VT; Šeffer & Šefferová 1989, Tab. 1 (*Ranunculo platanifolii-Adenostyletum alliariae*), r. 1–4, 7, 8, 17–21, VT; Miadok 1995: 43 (*Ranunculo platanifolii-Adenostyletum alliariae*), 2 r., NT; Šoltés, Školek & Kyselová ined., 3 r., VT; Šoltésová & Paclová ined., 6 r., VT.

2a Komárková 1964, Tab. 32 (*Athyrietum alpestris*), r. 5–7, ZT; Kremlová 1974, Tab. inter p. 44–45 (*Adenostyletum alliariae*, facies with *Athyrium alpestre*), r. 6, ZT; Králik 1979: 60 (*Athyrietum*), 1 r., ZT; Unar, Unarová & Šmarda 1984, Tab. 27 (*Athyrietum alpestris tatricum*), 3 r., ZT; Hadač 1956, Tab. 20 (*Athyrietum alpestris tatricum*), 3 r., VT; Šeffer & Šefferová 1989, Tab. 1, r. 23, 24, 30 (*Ranunculo platanifolii-Adenostyletum alliariae athyrietosum distentifolii*), VT; Chytrý ined., 1 r., VT.

2b Kremlová 1974, Tab. inter p. 44–45 (*Adenostyletum alliariae*, facies with *Athyrium alpestre*), r. 9, ZT; Bělohlávková 1980, Tab. 11 (*Athyrietum alpestris*), 6 r., KMF; Krajčiová & Šibík ined., 2 r., KMF.

3 Kliment, Bernátová & Obuch 1994: 15, r. 3 (*Senecioni-Adenostyletum alliariae*), VF; Sillinger 1933: 260 (*Adenostyletum alliariae*), r. 1, 2, NT; Altmannová 1983, Tab. 21 (*Adenostyletum alliariae*), r. 4, 6, NT; Dúbravcová & Hajdúk 1986: 47 (*Ranunculo platanifolii-Adenostyletum alliariae*), 1 r., ZT; Braun-Blanquet 1930: 16 (*Adenostyletum alliariae*), 1 r., VT; Domin 1930: 179 (*Adenostyleto-Aconitetum*), 1 r., BT; Hadač et al. 1969: 154 (*Delphinietum oxysepali* prov.), 1 r., BT; Jarolímek & Krajčiová ined., 10 r., KMF; Jarolímek, Šibík & Dúbravcová ined., 7 r., KMF; Kliment & Šibík ined., 3 r., KMF; Šibík & Krajčiová ined., 5 r., KMF; Bernátová & P. Kučera ined., 1 r., VF; Jarolímek & Alexyová ined., 1 r., NT; Valachovič ined., 1 r., NT; Valachovič, Turis & Holotová ined., 1 r., NT; Mucina ined., 1 r., ZT; Šoltésová & Paclová ined., 2 r., VT; Kliment & Valachovič ined., 6 r., BT; Jarolímek ined., 1 r., NT, 1 r., Veporské vrchy Mts.; Kliment ined., 2 r., KMF, 3 r., VF.

4a Hadač et al. 1969: 152 (*Doronicetum austriaci*), r. 1–3, 5, BT; Šmarda et al. 1971, Tab. 15 (*Adenostyletum alliariae*), r. 1, BT.

4b Hadač et al. 1969, p. 143 (*Petasito-Senecietum nemorensis*), 4 r., p. 149 (*Senecio-Adenostyletum alliariae*), 4 r., BT.

5 Kopecký 1971, Tab. 1, r. 15–19 (*Adenostyli-Athyrietum alpestris petasitetosum albae*), ZT.

6a Jarolímek ined., 2 r., MP; Jarolímek & Kochjarová ined., 1 r., MP; Valachovič & Turis ined., 2 r., MP.

6b Jarolímek & Krajčiová ined., 1 r., KMF; Mucina ined., 1 r., VF; Mucina, Jarolímek & Maglocký ined., 1 r., NT; Valachovič ined., 2 r., MP.

Localities of relevés (Tab. 5):

1. MP, Zlatno, Zlatnica-Kremenina Valley, 837 m a. s. l., N, 5°, 10 m^2, E_1: 100 %, E_0: 15%, 48° 48´ 40˝, 20° 06´ 19˝, 17. 7. 1996, Valachovič, Turis, author's mark of

relevé MV 1872.

2. MP, Zlatno, Zlatnica-Kremenina Valley, 828 m a. s. l., N, 5°, 10 m^2, E_1: 100 %, E_0: 10 %, 48° 48´ 40˝, 20° 06´ 19˝, 17. 7, 1996, Valachovič, Turis, MV 1873.
3. MP, Trsteník Valley, between the road and brook, 895 m a. s. l., SW, 15°, 4×10 m, E_1: 100 %, E_0: 75 %, 48° 47´ 24,5˝, 20° 05´ 32,5˝, 12. 7. 2001, Jarolímek, Kochjarová, IJ 2928.
4. MP, Havraník Valley, alluvium of occasional stream, 784 m a. s. l., N, 3°, 3×10 m, E_1: 100 %, E_0: 15 %, 48° 48´ 41,6˝, 20° 04´ 19,9˝, 9. 8. 2003, Jarolímek, IJ 3162.
5. MP, as rel. 4, S 370 m, 813 m a. s. l., SE, 3°, 3×8 m, E_1: 100 %, E_0: 25 %, 48° 48´ 35,6˝, 20° 04´ 08,6˝, 8. 8. 2003, Jarolímek, IJ 3163.
6. MP, Nižná Kľaková, mountain meadows, 1257 m a. s. l., W, 50°, 15 m^2, E_1: 100 %, E_0: 5 %, 48° 46´ 16˝, 19° 57´ 26˝, 11. 7. 2001, Valachovič, Kliment, MV 2393.
7. NT, Jánska dolina Valley, Ohnište Mt., W, 50°, 3×5 m, E_1: 100 %, E_0: 90 %, 48° 57´ 22˝, 19° 41´ 50˝, 22. 7. 1984, Mucina, Maglocký, Jarolímek, IJ 1110, LM 2997.
8. MP, Veľká Stožka Mt, 1070 m a. s. l., SW, 35°, 32 m^2, E_1: 100 %, 48° 46´ 00˝, 19° 57´ 20˝, 9. 7. 1985, Valachovič.
9. VF, Čierny Kameň Mt., rocks above the shepherd's chalet, 1420 m a. s. l., SE, 25°, 100 m^2, E_1: 40 %, E_0: 5 %, 48° 56´ 42˝, 19° 09´ 13˝, 16. 7. 1986, Mucina, LM 3164.
10. KMF, the ridge between pekelník and Veľký Kriváň Mt., small glen below the rocky wallet, 1525 m a. s. l., SSW, 40°, 4× 6 m, E_1: 100 %, 49° 11´ 23,5˝, 19° 01´ 21,3˝, 22. 7. 2003 Jarolímek, Krajčiová, IJ 3129.

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Tab. 1. Communities of the alliance *Calamagrostion villosae* in Slovakia.
Festuco picturatae-Calamagrostietum villosae (1), subass. *typicum* (1a), subass. *crepidetosum conyzifoliae* (1b); *Vaccinio myrtilli-Calamagrostietum villosae* (2), subass. *inops* (2a), subass. *avenuletosum versicoloris* (2b); *Calamagrostio villosae-Salicetum helveticae* (3)

Community			1a	1b	1	2a	2b	2	3
Number of relevés			83	48	131	16	45	61	16
Average number of taxa			20	33	25	17	24	22	20
Diagnostic taxa of the associations									
Cv,fp	*Festuca picturata*	D1	89^{4}	90^{4}	$\mathbf{89^{4}}$	25^{3}	38^{2}	34^{2}	38^{2}
MU	*Veratrum *lobelianum*	D1*	75^{3}	79^{3}	$\mathbf{76^{3}}$	25^{2}	35^{2}	31^{2}	50^{3}
Cv	*Gentiana punctata*	D1*	72^{3}	58^{3}	$\mathbf{67^{3}}$	61	38^{2}	30^{2}	88^{3}
MU	*Bistorta major*	D1*	42^{3}	56^{3}	$\mathbf{47^{3}}$	19^{2}	11^{2}	13^{2}	75^{3}
MU	*Acetosa arifolia*	D1	35^{3}	52^{2}	$\mathbf{41^{3}}$	6^{2}	9^{2}	8^{2}	6^{2}
Aa	*Adenostyles alliariae*	D1	36^{3}	42^{2}	$\mathbf{38^{2}}$	.	.	.	13^{3}
Iv	*Vaccinium vitis-idaea*	D2	2^{2}	13^{2}	6^{2}	50^{3}	58^{3}	$\mathbf{56^{3}}$	13^{4}
	Salix helvetica	D3	.	.	.	.	.	.	$\mathbf{99^{9}}$
	Dryopteris dilatata	D3	.	2^{2}	1^{2}	.	.	.	$\mathbf{63^{2}}$
	Hylocomium splendens (E_0)	D3	13^{2}	15^{3}	14^{2}	25^{2}	4^{4}	10^{3}	$\mathbf{63^{3}}$
MU	*Aconitum firmum*	D3	8^{2}	25^{2}	15^{2}	6^{2}	.	2^{2}	$\mathbf{56^{2}}$
	Dicranum scoparium (E_0)	D3	11^{2}	17^{2}	13^{2}	38^{2}	7^{2}	15^{2}	$\mathbf{44^{2}}$
Iv	*Salix kitaibeliana*	D3	1^{1}	6^{2}	3^{2}	.	.	.	$\mathbf{25^{2}}$
Differential taxa of the subassociations									
	Hypericum maculatum	D1b	17^{2}	$\mathbf{81^{3}}$	40^{3}	50^{3}	22^{3}	30^{3}	6^{2}
Fs	*Phyteuma spicatum*	D1b	12^{2}	$\mathbf{79^{2}}$	37^{2}	.	13^{2}	10^{2}	.
MU	*Geranium sylvaticum*	D1b	8^{2}	$\mathbf{63^{3}}$	28^{3}	13^{2}	4^{2}	7^{2}	13^{2}
	Valeriana tripteris	D1b	5^{2}	$\mathbf{56^{2}}$	24^{2}	.	2^{3}	2^{3}	13^{2}
Cv	*Crepis conyzifolia*	D1b	6^{1}	$\mathbf{56^{3}}$	24^{3}	19^{3}	40^{3}	34^{3}	.
Aa	*Ranunculus platanifolius*	D1b	17^{2}	$\mathbf{50^{2}}$	29^{2}	.	9^{2}	7^{2}	.
	Myosotis scorpioides agg.	D1b	.	$\mathbf{25^{2}}$	9^{2}	.	.	.	.
	Hylotelephium argutum	D1b	.	$\mathbf{23^{2}}$	8^{2}	.	.	.	.
	Anthoxanthum alpinum	D2b	57^{3}	67^{3}	60^{3}	19^{2}	$\mathbf{71^{3}}$	57^{3}	25^{2}
Ns	*Ranunculus pseudomontanus*	D2b	39^{2}	25^{2}	34^{2}	6^{2}	$\mathbf{64^{2}}$	49^{2}	13^{2}
JT	*Agrostis pyrenaica*	D2b	13^{2}	13^{2}	13^{2}	.	$\mathbf{47^{2}}$	34^{2}	6^{2}
Cv,JT	*Campanula tatrae*	D2b	31^{2}	56^{2}	40^{2}	19^{2}	$\mathbf{44^{2}}$	38^{2}	.
JT	*Campanula alpina*	D2b	17^{2}	6^{2}	13^{2}	.	$\mathbf{40^{3}}$	30^{3}	.
JT	*Festuca supina*	D2b	4^{2}	.	2^{2}	.	$\mathbf{40^{2}}$	30^{2}	.
jt	*Juncus trifidus*	D2b	16^{2}	15^{2}	15^{2}	.	$\mathbf{38^{2}}$	28^{2}	6^{2}
Ns	*Viola *sudetica*	D2b	5^{2}	6^{4}	5^{3}	.	$\mathbf{38^{2}}$	28^{2}	.
Calamagrostion villosae									
	Calamagrostis villosa	t	99^{8}	99^{8}	99^{8}	99^{7}	99^{7}	99^{7}	99^{6}
jt	*Carex *silicicola*	t,D2b	39^{2}	50^{3}	43^{3}	19^{2}	$\mathbf{84^{4}}$	67^{4}	13^{3}
jt	*Hieracium alpinum* agg.	C,D2b	27^{2}	35^{2}	30^{2}	13^{2}	$\mathbf{62^{2}}$	49^{2}	.
JT	*Avenula versicolor*	t2,D2b	25^{2}	10^{2}	20^{2}	**.**	$\mathbf{71^{2}}$	$\mathbf{52^{2}}$	.
	*Sempervivum *carpathicum*	C,D2b	19^{2}	29^{2}	23^{2}	.	$\mathbf{36^{2}}$	26^{2}	.
JT	*Pulsatilla scherfelii*	D	29^{2}	33^{3}	31^{3}	6^{3}	44^{3}	34^{3}	13^{2}

Calamagrostietalia villosae									
	*Luzula *rubella*		41^{3}	77^{3}	54^{3}	99^{3}	69^{3}	77^{3}	19^{3}
	Campanula serrata		4^{1}	6^{2}	5^{2}	6^{2}	24^{2}	20^{2}	6^{2}
	*Achillea *alpestris*		6^{2}	17^{3}	10^{2}	6^{2}	7^{2}	7^{2}	.
ca	*Calamagrostis arundinacea*		2^{2}	4^{3}	3^{3}	19^{2}	4^{3}	8^{2}	.
tf	*Rhodiola rosea*		5^{2}	33^{2}	15^{2}	.	4^{2}	3^{2}	38^{2}
	Trommsdorfia uniflora	D2b	19^{2}	35^{3}	25^{2}	.	**53^{2}**	39^{2}	.
ca	*Hieracium prenanthoides*		.	4^{2}	2^{2}	6^{2}	2^{2}	3^{2}	.
	Anemone narcissiflora		2^{3}	8^{2}	5^{2}	.	2^{2}	2^{2}	.
	Linum extraaxillare		.	6^{4}	2^{4}	.	2^{2}	2^{2}	.
tf	*Trisetum fuscum*		.	13^{2}	5^{2}	.	.	.	6^{2}
tf	*Carex aterrima*		.	15^{2}	5^{2}	.	.	.	.
tf	*Taraxacum alpinum*		.	10^{2}	4^{2}	.	.	.	.
	Knautia maxima		.	2^{2}	1^{2}	.	.	.	.
	Crepis mollis		.	2^{2}	1^{2}	.	.	.	.
Mulgedio-Aconitetea									
	*Solidago *minuta*		64^{3}	71^{3}	66^{3}	38^{2}	62^{2}	56^{2}	13^{2}
	Gentiana asclepiadea		14^{2}	29^{2}	20^{2}	38^{2}	33^{2}	34^{2}	6^{2}
	Poa chaixii		12^{2}	29^{3}	18^{2}	38^{2}	4^{2}	13^{2}	.
aa	*Athyrium distentifolium*		7^{2}	13^{2}	9^{2}	19^{2}	2^{2}	7^{2}	6^{2}
aa	*Milium effusum*		12^{2}	17^{2}	14^{2}	6^{2}	.	2^{2}	.
aa	*Doronicum austriacum*		16^{2}	17^{2}	16^{2}	.	2^{2}	2^{2}	.
aa	*Silene dioica*		7^{2}	17^{2}	11^{2}	.	.	.	6^{1}
	Senecio subalpinus		2^{2}	25^{3}	11^{3}	.	.	.	.
aa	*Cicerbita alpina*		1^{2}	4^{4}	2^{3}	.	.	.	.
	*Valeriana *sambucifolia*		1^{2}	2^{2}	2^{2}	.	.	.	.
	Thalictrum aquilegiifolium		10^{2}	4^{2}	.	2^{2}	2^{2}	.	
	Primula elatior		.	8^{2}	3^{2}	.	.	.	.
Pc	*Chaerophyllum hirsutum*		.	4^{3}	2^{3}	.	.	.	.
Juncetea trifidi									
	Cetraria islandica (E_0)		8^{2}	6^{1}	8^{2}	25^{3}	24^{2}	25^{3}	13^{3}
	Oreogeum montanum		92^{4}	81^{4}	88^{4}	25^{3}	78^{2}	64^{2}	81^{3}
	Vaccinium gaultherioides		4^{2}	2^{2}	3^{2}	13^{3}	9^{5}	10^{4}	13^{2}
	*Senecio *carpaticus*		8^{2}	2^{2}	6^{2}	6^{5}	16^{3}	13^{3}	6^{2}
	Polytrichum alpinum (E_0)		7^{2}	6^{3}	7^{2}	.	2^{7}	2^{7}	31^{2}
	Oreochloa disticha		1^{3}	.	1^{3}	.	4^{3}	3^{3}	13^{2}
	Bartsia alpina		6^{1}	10^{2}	8^{1}	.	11^{3}	8^{3}	.
	Euphrasia tatrae		4^{2}	.	2^{2}	.	9^{2}	7^{2}	.
	*Senecio *carniolicus*		.	2^{1}	1^{1}	.	2^{3}	2^{3}	6^{2}
Salicetea herbaceae									
	Luzula alpinopilosa		46^{3}	25^{2}	38^{3}	6^{2}	11^{2}	10^{2}	25^{2}
	Sedum alpestre		2^{2}	6^{2}	4^{2}	6^{2}	2^{1}	2^{2}	13^{1}
	Doronicum stiriacum		16^{2}	10^{2}	14^{2}	.	2^{1}	2^{1}	38^{2}
	Omalotheca supina		1^{1}	6^{1}	3^{1}	.	2^{2}	2^{2}	.
Nardo-Calunetea									
	Soldanella carpatica		64^{2}	73^{2}	67^{2}	50^{2}	62^{2}	59^{2}	75^{2}
	Potentilla aurea		77^{3}	90^{3}	82^{3}	44^{2}	87^{2}	75^{2}	19^{2}
	Homogyne alpina		90^{3}	79^{3}	86^{3}	81^{3}	96^{3}	92^{3}	88^{3}
	Phleum rhaeticum		18^{2}	29^{2}	22^{2}	6^{2}	4^{2}	5^{2}	.

Ligusticum mutellina	96^{3}	90^{3}	94^{3}	63^{3}	87^{3}	80^{3}	75^{2}
Calluna vulgaris	.	4^{2}	2^{2}	13^{3}	16^{3}	15^{3}	.
Nardus stricta	.	4^{1}	2^{1}	19^{3}	4^{3}	8^{3}	.
Other taxa							
Avenella flexuosa	67^{3}	67^{3}	67^{3}	99^{4}	91^{4}	93^{4}	99^{4}
Vaccinium myrtillus	59^{3}	73^{3}	64^{3}	99^{5}	93^{4}	95^{4}	69^{3}
Luzula sylvatica	8^{2}	6^{5}	8^{3}	13^{5}	2^{3}	5^{4}	13^{3}
Pinus mugo	1^{2}	4^{1}	2^{1}	13^{3}	4^{2}	7^{2}	6^{2}
Salix silesiaca	1^{2}	19^{2}	8^{2}	6^{2}	.	2^{2}	13^{2}
Huperzia selago	1^{1}	.	1^{1}	.	2^{3}	2^{3}	19^{1}
Deschampsia cespitosa	7^{3}	13^{3}	9^{3}	6^{2}	2^{5}	3^{4}	.
Senecio nemorensis agg.	4^{2}	29^{2}	13^{2}	6^{2}	7^{2}	7^{2}	.
Silene vulgaris	1^{2}	15^{4}	6^{4}	6^{1}	2^{1}	3^{1}	.
Hieracium murorum	1^{3}	6^{3}	3^{3}	13^{2}	2^{2}	5^{2}	.
Polygonatum verticillatum	1^{1}	8^{2}	4^{2}	6^{3}	7^{2}	7^{2}	.
Melampyrum sylvaticum	2^{1}	.	1^{1}	19^{2}	11^{2}	13^{2}	.
Oxalis acetosella	1^{2}	4^{2}	2^{2}	6^{1}	.	2^{1}	.
Omalotheca norvegica	10^{1}	31^{2}	18^{2}	.	20^{2}	15^{2}	.
Alchemilla sp. div.	6^{3}	29^{3}	15^{3}	.	4^{1}	3^{1}	.
Hieracium sp.	5^{2}	8^{3}	6^{2}	.	16^{2}	11^{2}	.
Pseudorchis albida	5^{1}	10^{2}	7^{1}	.	11^{2}	8^{2}	.
Leontodon hispidus	4^{2}	4^{2}	4^{2}	.	2^{1}	2^{1}	.
Rhinanthus pulcher	4^{2}	40^{2}	17^{2}	.	13^{3}	10^{3}	.
Jovibarba globifera	2^{4}	2^{3}	2^{3}	.	7^{2}	5^{2}	.
Thymus alpestris	1^{2}	17^{2}	7^{2}	.	9^{3}	7^{3}	.
Pilosella aurantiaca	1^{2}	2^{3}	2^{3}	.	4^{2}	3^{2}	.
Galium anisophyllon agg.	1^{1}	13^{2}	5^{2}	.	7^{1}	5^{1}	.
Chamerion angustifolium	1^{2}	13^{1}	5^{1}	13^{2}	.	3^{2}	.
Cardaminopsis halleri	2^{2}	.	2^{2}	.	2^{5}	3^{5}	.
Antennaria dioica	1^{2}	.	1^{2}	.	7^{2}	5^{2}	.
Lilium martagon	.	10^{2}	4^{2}	.	2^{2}	2^{2}	.
Rubus idaeus	.	15^{2}	5^{2}	13^{3}	.	3^{3}	.
Sorbus aucuparia	.	2^{2}	1^{2}	13^{1}	.	3^{1}	.
Ranunculus breyninus	.	8^{2}	3^{2}	.	2^{3}	2^{3}	.
Gymnadenia conopsea	.	6^{2}	2^{2}	.	7^{2}	5^{2}	.
Arabis alpina	.	2^{2}	1^{2}	.	4^{2}	3^{2}	.
Maianthemum bifolium	.	2^{1}	1^{1}	.	2^{2}	2^{2}	.
Phyteuma orbiculare	.	2^{1}	1^{1}	.	2^{2}	2^{2}	.
Viola biflora	11^{2}	29^{3}	18^{2}	.	.	.	19^{1}
Leucanthemum rotundifolium	2^{2}	21^{3}	9^{3}	.	.	.	19^{2}
Pilosella officinarum	1^{3}	4^{2}	2^{2}	.	.	.	6^{2}
Picea abies	.	.	.	6^{1}	2^{2}	3^{2}	6^{2}
Juniperus communis	.	.	.	25^{2}	4^{3}	10^{2}	.
Mosses and lichens							
Rhytidiadelphus triquetrus	4^{2}	6^{3}	5^{3}	.	2^{2}	2^{2}	38^{3}
Drepanocladus uncinatus	6^{2}	13^{2}	8^{2}	6^{1}	4^{2}	5^{1}	.
Racomitrium canescens	1^{1}	2^{1}	2^{1}	.	7^{2}	5^{2}	.
Pleurozium schreberi	$\mathbf{56}^{4}$	18^{3}	28^{4}	14^{3}	15^{2}	15^{2}	31^{4}
Plagiothecium sp.	5^{2}	2^{2}	4^{2}	6^{2}	.	2^{2}	6^{2}

Polytrichum strictum	1^3	.	1^3	13^3	2^2	5^2	31^3
Rhytidiadelphus squarrosus	7^2	19^3	11^3	.	4^2	3^2	19^2
Brachythecium starkei	8^2	13^2	10^2	.	2^1	2^1	6^5
Plagiothecium denticulatum	2^2	.	1^2	6^2	.	2^2	13^3
Barbilophozia barbata	2^3	.	1^3	6^2	.	2^2	19^2
Brachythecium reflexum	11^2	8^2	10^2	.	.	.	19^2
Brachythecium rutabulum	6^3	2^7	5^3	6^3	2^1	3^2	.
Polytrichum formosum	6^2	2^2	5^2	6^2	2^7	3^5	.
Polytrichum piliferum	1^2	2^1	2^2	.	9^3	7^3	.
Barbilophozia lycopodioides	6^3	.	4^3	.	4^2	3^2	.
Polytrichum sp.	2^4	.	2^4	13^2	.	3^2	.
Diplophyllum taxifolium	1^2	.	1^2	6^2	.	2^2	.
Racomitrium heterostichum	1^1	.	1^1	.	7^2	5^2	.
Racomitrium patens	1^2	.	1^2	.	2^1	2^1	.
Kiarea starkei	1^2	.	1^2	.	2^2	2^2	.
Barbilophozia hatcheri	.	2^1	1^1	6^2	2^2	3^2	.
Polytrichum juniperinum	.	4^3	2^3	6^3	18^2	15^2	.
Tortella tortuosa	.	2^1	2^1	.	2^2	2^2	.
Brachythecium velutinum	1^2	2^2	2^2	.	.	.	6^5
Ptilidium ciliare	.	.	.	6^5	2^2	3^4	6^1
Cladonia pyxidata	1^1	6^1	3^1	.	13^2	11^2	.
Cladonia coccifera	1^2	2^1	2^2	6^2	2^2	3^2	.
Cladonia sp.	4^2	10^2	6^2	13^2	11^2	11^2	.
Cladonia ecmocyna	1^2	.	1^2	.	2^1	2^1	.
Cladonia macrophylloides	1^2	.	1^2	.	2^2	2^2	.

D1* differential taxa against the association *Vaccinio myrtilli-Calamagrostietum villosae*

Rarely occurring taxa with low constancy:

E_1: *Acetosa scutata* 8^3 (1b), 3^3 (1); *Agrostis stolonifera* 6^2 (2a), 2^2 (2); *Androsace obtusifolia* 2^2 (1b), 1^2 (1); *Angelica sylvestris* 2^1 (1b), 1^1 (1); *Avenula pubescens* 1^2 (1b), 1^2 (1); *Bistorta vivipara* 4^2 (1a), 8^2 (1b), 5^2 (1); *Botrychium lunaria* 6^1 (1b), 2^1 (1); *Caltha *laeta* 1^2 (1a, 1); *Carex ovalis* 6^2 (2a), 2^2 (2); *Carlina acaulis* 2^3 (1b), 1^3 (1); *Coeloglossum viride* 2^2 (1a, 1b, 1); *Crepis paludosa* 8^2 (1b), 3^2 (1); *Digitalis grandiflora* 4^3 (1b), 2^3 (1); *Dryopteris filix mas* 6^2 (1a), 2^2 (1); *Empetrum hermaphroditum* 6^2 (2a), 2^2 (2); *Epilobium alsinifolium* 4^2 (1b), 2^2 (1); *E. montanum* 8^2 (1b), 3^2 (1); *Euphrasia* sp. 4^2 (1b), 2^2 (1); *Galium schultesii* 2^2 (1b), 1^2 (1); *Gentianella lutescens* 2^1 (2b, 2); *Geum rivale* 6^3 (1b), 2^3 (1); *Heracleum sphondylium* 15^2 (1b), 5^2 (1); *Hieracium caesium* 2^2 (1b), 1^2 (1); *H. epimedium* 8^2 (1b), 3^2 (1); *H. fritzei* 1^2 (1a, 1); *H. lachenalii* 7^2 (2b), 5^2 (2); *Leontodon pseudotaraxaci* 2^2 (1b), 1^2 (1); *Leucanthemopsis *tatrae* 1^2 (1a, 1); *Leucanthemum vulgare* agg. 6^2 (1b), 2^2 (1); *Melampyrum pratense* 6^1 (2a), 2^1 (2); *Moneses uniflora* 2^2 (1b), 1^2 (1); *Myosotis sylvatica* 2^2 (1a, 1); *Omalotheca sylvatica* 6^1 (2a), 2^1 (2); *Paris quadrifolia* 2^2 (2b, 2); *Pilosella alpicola* 2^1 (1b), 1^1 (1); *P. atrata* 2^2 (2b, 2); *Poa alpina* 2^2 (1a, 1); *P. nemoralis* 13^3 (1b), 5^3 (1); *Potentilla erecta* 2^2 (2b, 2); *Primula minima* 2^1 (1b), 1^1 (1); *Pyrola minor* 6^2 (3); *Ranunculus acris* 1^1 (1a), 2^1 (1b, 1); *R. nemorosus* 4^2 (1a, 1b, 1); *Salix caprea* 6^5 (3); *S. herbacea* 1^1 (1a, 1); *S. phylicifolia* 2^3 (1b), 1^3 (1); *S. reticulata* 1^2 (1a), 4^2 (1b), 2^2 (1); *Saxifraga paniculata* 2^1 (1b), 1^1 (1); *Selaginella selaginoides* 4^2 (1b), 2^2 (1), 6^2 (3); *Sesleria tatrae* 4^1 (1a), 2^3 (1b), 3^2 (1); *Soldanella hungarica* 2^2 (2b, 2); *Sorbus chamaemespilus* 2^5 (1b), 1^5 (1); *Swertia *alpestris* 2^2 (1b), 1^2 (1); *Tephroseris crispa* 2^2 (1b), 1^2 (1); *Thesium alpinum* 4^2 (1b), 2^2 (1); *Thymus* sp. 4^2 (1b), 3^2 (1); *Traunsteinera globosa* 2^2 (1b), 1^2 (1); *Veronica alpina* 1^2 (1a), 4^2 (1b), 2^2 (1); *V. chamaedrys* 2^2 (2b, 2).

E_0: *Anastrepta orcadensis* 2^2 (2b, 2); *Anomodon viticulosus* 2^2 (1b), 1^2 (1); *Barbilophozia* sp. 1^2 (1a, 1); *Bazzania trilobata* 4^2 (1b), 2^2 (1); *Bazzania* sp. 1^2 (1a, 1); *Blepharostoma trichophyllum* 1^2 (1a, 1), 6^2 (3); *Brachythecium erythrorrhizon* 2^2 (1b), 1^2 (1); *B. glareosum* 4^2 (1b), 2^2 (1); *B. salebrosum* 1^2 (1a), 8^3 (1b), 4^2 (1); *Bryum elegans* 1^1 (1a, 1); *Calypogeia azurea* 2^1 (1b), 1^1 (1); *Cephalozia* sp. 2^2 (1a, 1); *Ceratodon purpureus* 2^2 (2b, 2); *Chiloscyphus pallescens* 2^1 (1b, 1); *Climacium dendroides* 6^2 (3); *Desmatodon latifolius* 2^1 (1b), 1^1 (1); *Dicranoweissia crispula* 6^1 (1b), 2^1 (1); *Dicranum fuscesens* 2^2 (2b, 2); *D. montanum* 2^2 (2b, 2); *D. polysetum* 6^3 (2a), 2^3 (2); *Errhynchium hians* 1^2 (1a), 8^5 (1b), 4^4 (1); *Grimmia alpestris* 2^2 (1b), 1^2 (1); *Hylocomium umbratum* 2^3 (1b), 1^3 (1), 6^2 (3); *Hypnum cupressiforme* 4^2 (2b), 3^2 (2); *Lophozia wenzelii* 2^1 (1b), 1^1 (1); *Mnium marginatum* 4^2 (1b), 2^2 (1); *M. thomsonii* 4^3 (1b), 2^3 (1); *Mnium* sp. 4^2 (1b), 2^2 (1); *Oncophorus virens* 6^1 (1b), 2^1 (1); *Plagiochila asplenioides* 6^2 (1b), 2^2 (1); *Plagiomnium cuspidatum* 1^2 (1a), 10^3 (1b), 5^3 (1); *Plagiothecium laetum* 10^2 (1a), 4^3 (1b), 8^2 (1); *P. succulentum* 2^2 (2b, 2); *Pohlia cruda* 2^1 (1b), 1^1 (1); *P. nutans* 4^2 (2b), 3^2 (2); *Pohlia* sp. 2^2 (2b, 2); *Polytrichum commune* 6^5 (2a), 2^5 (2); *Ptilidium pulcherrimum* 6^2 (2a), 2^2 (2); *Ptilium crista-castrensis* 6^2 (2a), 2^2 (2); *Racomitrium aciculare* 2^1 (2b, 2); *R. sudeticum* 2^2 (1a), 2^1 (1b, 1); *Racomitrium* sp. 2^2 (2b, 2); *Rhizomnium punctatum* 2^2 (1b), 1^2 (1), 6^2 (3); *Rhodobryum roseum* 8^1 (1b), 3^1 (1); *Rhytidium rugosum* 2^2 (2b, 2); *Sphagnum girgensohnii* 2^3 (1a, 1), 6^2 (3); *S. quinquefarium* 6^5 (3). – *Cladonia arbuscula* 4^2 (2b), 3^2 (2); *C. bellidiflora* 2^2 (2b, 2); *C. furcata* 6^2 (2a), 2^1 (2b), 3^2 (2); *C. macrophylla* 2^2 (2b, 2); *C. polydactyla* 6^1 (3); *C. rangiferina* 6^3 (2a), 4^2 (2b), 5^2 (2); *C. stricta* 2^1 (1b), 1^1 (1); *C. uncialis* 2^1 (1b), 1^1 (1); *Peltigera aphthosa* 13^2 (3); *P. canina* 4^2 (1b), 2^2 (1); *P. malacea* 2^2 (1b), 1^2 (1).

Tab. 2. Communities of the alliance *Trisetion fusci* in Slovakia.
Deschamsio caespitosae-Salicetum helveticae (1); *Rhodiolo-Deschampsietum caespitosae* (2); *Phleo alpini-Deschampsietum caespitosae* (3); *Aconitetum firmi* (4); *Bryo pseudotriquetri-Chaerophylletum hirsuti* (5)

Community			1	2	3	4	5
Number of relevés			23	50	34	34	7
Average number of taxa			25	32	22	24	29
Diagnostic taxa of the associations							
	Sphagnum capillifolium	C1	**43^{5}**	2^{1}	3^{3}	.	.
	Salix helvetica	D1	**99^{8}**	.	.	.	.
	*Swertia *alpestris*	D2	22^{2}	**58^{3}**	.	.	14^{1}
	Bistorta vivipara	D2	17^{2}	**48^{2}**	15^{2}	6^{2}	14^{1}
NC	*Nardus stricta*	D3	9^{1}	4^{2}	**47^{2}**	.	.
MC	*Chrysosplenium alternifolium*	D4	4^{2}	14^{2}	6^{2}	**50^{3}**	29^{2}
	Rumex alpinus	D4	.	.	3^{2}	**26^{4}**	.
	Plagiomnium affine	D4	.	.	.	**15^{2}**	.
	Chiloscyphus polyanthos (E_0)	C5	.	.	.	.	**71^{2}**
	Plagiomnium medium (E_0)	C5	.	.	3^{2}	3^{7}	**57^{2}**
MC	*Brachythecium rivulare* (E_0)	D5	.	6^{4}	6^{3}	29^{4}	**86^{2}**
MC	*Rhizomnium punctatum* (E_0)	D5	17^{3}	10^{2}	9^{1}	9^{3}	**71^{2}**
	Marchantia polymorpha (E_0)	D5	13^{1}	.	6^{2}	3^{3}	**71^{2}**
aa	*Doronicum austriacum*	D5	9^{3}	6^{2}	15^{1}	18^{3}	**57^{2}**
	Poa pratensis	D5	.	.	3^{5}	6^{1}	**57^{1}**
	Galium anisophyllon	D5	.	12^{2}	6^{2}	.	**43^{2}**
MC	*Philonotis seriata* (E_0)	D5	.	.	3^{3}	3^{1}	**43^{2}**
Mc	*Bryum weigelii* (E_0)	D5	.	.	.	**9^{3}**	**43^{2}**
Trisetion fusci							
	Trisetum fuscum	tC2	43^{3}	**58^{5}**	9^{2}	6^{2}	14^{2}
	Rhodiola rosea	tC2	74^{2}	**94^{6}**	24^{2}	41^{3}	29^{1}
	Taraxacum alpinum	C	17^{2}	66^{2}	41^{2}	21^{2}	43^{2}
	Cerastium fontanum	tC3	9^{1}	18^{2}	**53^{2}**	9^{2}	14^{1}
Mc	*Bryum pseudotriquetrum* (E_0)	tC5	13^{1}	28^{2}	12^{2}	12^{2}	**86^{1}**
	Carex aterrima	tC2	30^{2}	**52^{2}**	18^{2}	.	14^{1}
	Cardaminopsis neglecta	C	.	28^{2}	12^{3}	3^{2}	14^{1}
MU	*Aconitum firmum*	D	48^{4}	82^{3}	62^{3}	**99^{8}**	86^{2}
MC	*Caltha *laeta*	D	43^{2}	46^{3}	32^{3}	44^{3}	71^{2}
Mc	*Cardamine *opicii*	D	9^{3}	6^{2}	12^{2}	26^{3}	14^{1}
Calamagrostion villosae							
	Calamagrostis villosa		61^{3}	54^{3}	9^{2}	38^{3}	.
JT	*Avenula versicolor*		26^{1}	8^{2}	3^{1}	.	.
	*Sempervivum *carpathicum*		4^{2}	10^{2}	.	.	.
jt	*Hieracium alpinum* agg.		.	10^{2}	6^{2}	.	.
Calamagrostietalia villosae							
fp	*Festuca picturata*		65^{2}	70^{3}	68^{3}	47^{3}	57^{2}
Cv	*Gentiana punctata*		61^{2}	44^{2}	9^{1}	12^{2}	14^{1}
JT	*Campanula tatrae*		13^{2}	28^{2}	35^{2}	.	14^{1}

jt	*Carex *silicicola*	13^{2}	46^{2}	26^{2}	3^{2}	.
	*Luzula *rubella*	4^{2}	14^{2}	26^{2}	3^{1}	.
	*Solidago *minuta*	22^{2}	20^{3}	26^{2}	6^{2}	.
	Crepis conyzifolia	9^{1}	4^{2}	18^{2}	.	.
	*Achillea *alpestris*	.	4^{3}	15^{1}	9^{3}	.
	Anemone narcissiflora	.	4^{3}	.	6^{3}	.
	Campanula serrata	.	.	6^{2}	3^{3}	.
	Trommsdorfia uniflora	.	2^{2}	.	.	.
Adenostyletalia alliariae						
	Adenostyles alliariae	22^{2}	28^{3}	3^{1}	44^{4}	29^{2}
	Milium effusum	4^{3}	12^{3}	3^{2}	26^{3}	14^{1}
	Silene dioica	4^{5}	10^{3}	3^{2}	12^{3}	29^{2}
	Athyrium distentifolium	4^{2}	18^{2}	6^{2}	24^{3}	.
	Ranunculus platanifolius	9^{3}	18^{3}	6^{2}	3^{2}	.
	Cicerbita alpina	.	.	.	9^{3}	.
Petasito-Chaerophylletalia						
	Stellaria nemorum	9^{2}	8^{2}	21^{3}	**71^{6}**	**99^{3}**
	Chaerophyllum hirsutum	17^{4}	22^{3}	9^{2}	**62^{5}**	**99^{7}**
	Carduus personata	.	2^{3}	.	6^{3}	.
Mulgedio-Aconitetea						
	Geranium sylvaticum	39^{4}	48^{4}	18^{2}	32^{4}	43^{1}
	Bistorta major	87^{2}	70^{3}	26^{2}	35^{5}	71^{3}
	*Veratrum *lobelianum*	61^{2}	20^{2}	21^{2}	32^{3}	57^{2}
	Acetosa arifolia	4^{2}	28^{3}	21^{3}	53^{2}	57^{2}
	Senecio subalpinus	4^{2}	24^{3}	35^{3}	41^{2}	99^{3}
	Primula elatior	9^{3}	16^{2}	.	9^{2}	14^{5}
	Thalictrum aquilegiifolium	.	18^{3}	3^{1}	6^{2}	.
	Gentiana asclepiadea	.	6^{3}	3^{1}	18^{3}	.
	Poa chaixii	.	8^{2}	9^{3}	3^{1}	.
	*Valeriana *sambucifolia*	4^{5}	.	3^{1}	.	.
Juncetea trifidi						
	Oreogeum montanum	74^{3}	66^{3}	82^{3}	56^{3}	43^{2}
	Festuca supina	9^{3}	.	12^{3}	3^{2}	.
	Agrostis pyrenaica	17^{2}	32^{2}	35^{3}	.	.
	Polytrichum alpinum (E_0)	39^{2}	20^{2}	3^{3}	.	.
	Juncus trifidus	13^{2}	10^{2}	9^{2}	.	.
	Campanula alpina	4^{2}	4^{2}	9^{2}	.	.
	Oreochloa disticha	13^{2}	2^{1}	6^{2}	.	.
	Saxifraga moschata	.	4^{2}	9^{3}	3^{2}	.
	Salix kitaibeliana	22^{3}	14^{3}	.	.	.
	Pulsatilla scherfelii	17^{1}	16^{2}	.	.	.
	Cladonia gracilis (E_0)	9^{1}	4^{1}	.	.	.
	Vaccinium vitis-idaea	13^{2}	.	3^{2}	.	.
	Cetraria islandica (E_0)	9^{2}	.	3^{2}	.	.
	Euphrasia tatrae	.	2^{1}	9^{2}	.	.
	Luzula sudetica	.	4^{2}	9^{1}	.	.
	Primula minima	.	2^{1}	9^{3}	.	.
	Pedicularis oederi	.	20^{2}	.	3^{2}	.

Pedicularis verticillata	.	4^{2}	.	3^{2}	.
Gentiana frigida	4^{2}	.	.	.	.
Saussurea alpina	.	8^{3}	.	.	.
Lloydia serotina	.	2^{1}	.	.	.
Silene acaulis	.	.	9^{3}	.	.
*Antennaria *carpatica*	.	.	3^{2}	.	.
Vaccinium gaultherioides	.	.	3^{2}	.	.
Salicetea herbaceae					
*Luzula *obscura*	61^{2}	56^{3}	38^{2}	41^{3}	86^{2}
Sedum alpestre	9^{1}	12^{2}	3^{1}	3^{1}	.
Salix herbacea	22^{2}	8^{4}	3^{2}	.	.
Veronica alpina	9^{2}	4^{2}	15^{2}	.	.
Omalotheca supina	4^{1}	2^{2}	6^{3}	.	.
Myosotis alpestris	.	8^{2}	.	12^{3}	.
Doronicum stiriacum	13^{2}	2^{2}	.	.	.
Leontodon pseudotaraxaci	.	10^{2}	.	.	.
Saxifraga androsacea	.	6^{1}	.	.	.
Thlaspietea rotundifolii					
Arabis alpina	9^{3}	10^{3}	6^{3}	15^{2}	29^{2}
Delphinium oxysepalum	9^{2}	12^{4}	.	18^{3}	.
Poa granitica	.	4^{2}	6^{2}	6^{3}	.
Oxyria digyna	.	2^{3}	.	.	14^{1}
*Cerastium *glandulosum*	.	.	6^{4}	.	.
Nardo-Callunetea					
Ligusticum mutellina	74^{3}	98^{3}	82^{3}	71^{3}	86^{2}
Soldanella carpatica	65^{2}	56^{2}	38^{2}	32^{2}	29^{2}
Phleum rhaeticum	26^{2}	32^{2}	56^{2}	15^{2}	43^{1}
Potentilla aurea	22^{2}	76^{2}	74^{2}	18^{2}	71^{1}
Homogyne alpina	52^{2}	48^{2}	41^{2}	26^{2}	.
Ranunculus pseudomontanus	13^{2}	36^{2}	24^{3}	21^{2}	.
Montio-Cardaminetea					
Epilobium anagallidifolium	13^{1}	2^{2}	6^{3}	.	.
Philonotis fontana (E_0)	.	2^{2}	6^{3}	3^{3}	.
Palustriella commutata (E_0)	.	2^{2}	3^{3}	.	14^{3}
Epilobium alsinifolium	.	.	15^{2}	18^{2}	14^{1}
Pohlia wahlenbergii (E_0)	.	8^{3}	.	.	.
Scapania undulata (E_0)	.	8^{2}	.	.	.
Bryum schleicheri (E_0)	.	2^{5}	.	.	.
Saxifraga aizoides	.	.	3^{5}	.	.
Cratoneurum filicinum (E_0)	.	.	3^{1}	.	.
Stellaria alsine	.	.	.	3^{1}	.
Pellia neesiana (E_0)	.	.	.	3^{2}	.
Other taxa					
Deschampsia cespitosa	57^{4}	84^{6}	**99^{8}**	82^{4}	99^{4}
Viola biflora	52^{3}	84^{3}	53^{3}	71^{3}	57^{3}
Alchemilla sp. div.	57^{3}	80^{3}	79^{4}	85^{3}	99^{5}
Anthoxanthum alpinum	52^{2}	52^{2}	26^{2}	9^{2}	14^{2}
Leucanthemum rotundifolium	30^{3}	20^{3}	9^{4}	29^{3}	29^{4}

Poa alpina	9^{2}	50^{2}	32^{3}	21^{4}	43^{1}
Myosotis scorpioides agg.	4^{5}	14^{2}	12^{2}	35^{3}	71^{2}
Geum rivale	17^{2}	4^{2}	.	35^{3}	29^{3}
Phyteuma spicatum	4^{2}	22^{2}	6^{2}	.	43^{1}
Avenella flexuosa	30^{2}	36^{2}	41^{3}	12^{2}	.
Vaccinium myrtillus	13^{2}	12^{2}	6^{1}	3^{3}	.
Hypericum maculatum	.	34^{3}	24^{3}	26^{3}	71^{1}
Senecio nemorensis agg.	.	8^{3}	9^{3}	32^{3}	29^{1}
Poa nemoralis	.	6^{2}	3^{3}	12^{3}	14^{2}
Rubus idaeus	.	6^{2}	6^{2}	9^{2}	14^{1}
Agrostis capillaris	.	4^{2}	18^{3}	9^{2}	14^{2}
Crepis paludosa	.	4^{2}	3^{2}	6^{2}	14^{2}
Leontodon hispidus	.	2^{2}	12^{2}	3^{1}	29^{1}
Archangelica officinalis	17^{2}	20^{4}	.	12^{5}	.
Myosotis sp.	4^{2}	2^{2}	.	3^{2}	.
Ranunculus nemorosus	17^{2}	10^{2}	12^{2}	.	.
Dryopteris filix-mas	9^{2}	4^{2}	6^{2}	.	.
Dryopteris carthusiana	4^{1}	6^{2}	3^{1}	.	.
Juncus filiformis	4^{1}	2^{2}	3^{5}	.	.
Heracleum sphondylium	.	8^{2}	3^{2}	12^{2}	.
Chamerion angustifolium	.	8^{2}	3^{1}	3^{1}	.
Luzula sylvatica	.	4^{3}	6^{2}	3^{2}	.
Eriophorum vaginatum	4^{2}	.	3^{2}	.	.
Thymus alpestris	.	20^{3}	21^{3}	.	.
Mosses and lichens					
Drepanocladus uncinatus	26^{2}	36^{2}	18^{2}	12^{2}	.
Brachythecium starkei	17^{3}	10^{2}	6^{2}	9^{3}	.
Plagiothecium sp.	9^{2}	4^{2}	.	3^{3}	.
Brachythecium reflexum	13^{4}	2^{3}	.	6^{3}	.
Scapania subalpina	13^{2}	4^{2}	.	3^{1}	.
Scapania helvetica	9^{2}	2^{1}	.	3^{3}	.
Plagiothecium denticulatum	4^{2}	.	.	12^{1}	14^{1}
Dicranum scoparium	13^{2}	4^{2}	3^{5}	.	.
Pleurozium schreberi	13^{2}	4^{3}	15^{2}	.	.
Hylocomium splendens	13^{2}	4^{1}	3^{2}	.	.
Polytrichum strictum	9^{2}	2^{2}	3^{5}	.	.
Oncophorus virens	4^{1}	16^{2}	3^{3}	.	.
Pohlia drummondii	4^{1}	6^{1}	3^{2}	.	.
Aulacomnium palustre	4^{1}	4^{2}	3^{2}	.	.
Campylium stellatum	.	24^{2}	9^{2}	3^{2}	14^{2}
Brachythecium salebrosum	.	8^{2}	26^{2}	6^{2}	.
Brachythecium sp.	.	6^{2}	9^{2}	9^{4}	.
Mnium thomsonii	.	4^{1}	3^{1}	3^{3}	.

D2* differential taxa against herb-grass communities of the alliance (i. e. excluding *Deschampsio-Salicetum helveticae*)
D4* differential taxa against the associations *Phleo rhaetici-Deschampsietum caespitosae* and *Bryo pseudotriquetri-Chaerophylletum hirsuti*

Rarely occurring taxa with low constancy:
E_1: *Adoxa moschatellina* 3^{1} (3), 3^{3} (4); *Allium *sibiricum* 2^{5} (2); *Alopecurus pratensis* 3^{2}

(4); *Athyrium filix-femina* 3^2 (4); *Bartsia alpina* 10^2 (2); *Botrychium lunaria* 3^1 (3, 4); *Briza media* 6^1 (3); *Calamagrostis arundinacea* 4^5 (1); *Callianthemum coriandriifolium* 8^2 (2); *Cardaminopsis halleri* 6^2 (4); *Carex nigra* 2^1 (2), 6^3 (3); *Cerastium cerastioides* 4^3 (2), 9^3 (3); *Cirsium heterophyllum* 6^4 (3), 14^1 (5); *Cochlearia tatrae* 3^2 (4); *Coeloglossum viride* 4^2 (1); *Cruciata glabra* 3^2 (3); *Cystopteris fragilis* 6^2 (2), 3^1 (4); *Dryopteris dilatata* 4^2 (1); *Epilobium alpestre* 2^3 (2); *E. montanum* 2^2 (2), 6^2 (4); *Euphrasia* sp. 2^3 (2); *Festuca rubra* 3^2 (3); *Filipendula ulmaria* 3^2 (4); *Gentiana nivalis* 2^1 (2); *Gymnocarpium dryopteris* 3^2 (3); *Hieracium murorum* 3^2 (4); *Hieracium* sp. 3^2 (3); *Huperzia selago* 13^1 (1); *Hylotelephium argutum* 3^2 (4); *Juniperus sibirica* 3^2 (3); *Knautia kitaibelii* 2^2 (2); *Leontodon autumnalis* 3^3 (3); *Leucanthemopsis *tatrae* 4^1 (2); *Leucanthemum vulgare* agg. 3^1 (3); *Lilium martagon* 3^1 (3); *Myosotis sylvatica* 12^2 (4); *Omalotheca norvegica* 6^1 (3); *Oxalis acetosella* 3^1 (3), 3^3 (4); *Petasites albus* 3^2 (4); *Picea abies* 3^2 (3); *Pilosella officinarum* 3^1 (3); *Pinus mugo* 3^2 (4); *Polygonatum verticillatum* 4^2 (2); *Polystichum lonchitis* 2^3 (2), 3^2 (3); *Primula farinosa* 3^2 (3); *Pseudorchis albida* 3^1 (3); *Ranunculus acris* 3^2 (3); *R. breyninus* 3^2 (3); *R. repens* 6^2 (3); *Rhinanthus pulcher* 10^2 (2), 12^2 (3); *Sagina saginoides* 2^2 (2), 3^1 (4); *Salix phylicifolia* 8^2 (2); *Saxifraga carpatica* 4^2 (2), 3^2 (4); *S. rotundifolia* 6^2 (4); *Scrophularia nodosa* 2^2 (2); *S. scopolii* 3^3 (4); *Selaginella selaginoides* 8^1 (2), 3^2 (3); *Silene pusilla* 2^3 (2), 18^4 (3); *Taraxacum fontanum* 6^3 (2); *T. officinale* agg. 6^2 (3), 6^3 (4); *Tephroseris crispa* 8^1 (2), 6^2 (4); *Trifolium repens* 3^2 (3); *Trisetum* sp. 3^2 (4); *Trollius altissimus* 8^2 (2), 9^6 (4); *Urtica dioica* 3^3 (4); *Valeriana tripteris* 12^3 (2), 14^2 (5); *Veronica aphylla* 2^2 (2); *V. chamaedrys* 3^2 (3); *Veronica* sp. 4^2 (2); *Viola *sudetica* 3^2 (3).

E_0: *Anomodon viticulosus* 2^1 (2); *Anthelia juratzkana* 9^1 (1); *Barbilophozia attenuata* 2^5 (2), 3^2 (4); *B. hatcheri* 2^2 (2), 6^2 (4); *Barbilophozia* sp. 2^2 (2); *Bartramia ithyphylla* 2^1 (2), 14^1 (5); *Blepharostoma trichophyllum* 4^2 (1), 6^2 (2); *Blindia acuta* 6^3 (3); *Blindia* sp. 2^2 (2); *Brachythecium glaciale* 2^1 (2); *B. rutabulum* 3^2 (4); *B. vanekii* 4^3 (2); *B. velutinum* 4^5 (1); *Bryum pallescens* 6^1 (2), 3^1 (4); *Cephalozia bicuspidata* 9^1 (1), 10^2 (2); *Chiloscyphus pallescens* 14^1 (5); *Cirriphyllum piliferum* 4^1 (1), 3^2 (3); *Climacium dendroides* 6^2 (2); *Ctenidium molluscum* 2^2 (2); *Desmatodon latifolius* 2^2 (2), 3^3 (3); *Dicranoweissia crispula* 3^3 (3); *Dicranum bonjeanii* 4^2 (2), 3^1 (4); *D. polysetum* 3^3 (3); *Dicranum* sp. 3^6 (4); *Diplophyllum albicans* 2^1 (2); *D. taxifolium* 2^1 (2); *Drepanocladus exanulatus* 6^4 (3), 3^7 (4); *Fissidens osmundoides* 4^1 (2); *Grimmia hartmannii* 3^2 (3); *Heterocladium dimorphum* 4^2 (1), 2^1 (2); *H. heterophyllum* 2^1 (2); *Hylocomium pyrenaicum* 4^2 (1), 6^2 (2); *H. umbratum* 2^1 (2), 3^1 (3); *Jamesoniella autumnalis* 4^3 (1); *Jungermannia atrovirens* 2^3 (2); *J. sphaerocarpa* 4^2 (2), 3^1 (4); *Kiarea falcata* 9^2 (1); *Lescuraea mutabilis* 4^1 (1), 4^5 (2); *Lescuraea* sp. 8^3 (2); *Leskea polycarpa* 12^4 (2); *Lophozia bantriensis* 4^1 (2); *L. sudetica* 13^2 (1); *Marsupella adusta* 2^1 (2); *M. emarginata* 9^2 (1), 4^1 (2); *Mnium ambiguum* 2^5 (2); *M. marginatum* 9^5 (1), 6^2 (2); *M. spinosum* 4^3 (2), 3^5 (4); *Mnium* sp. 4^3 (2), 3^2 (4); *Nardia scalaris* 2^1 (2); *Oligotrichum hercynicum* 3^1 (3); *Oxystegus tenuirostris* 4^2 (1), 6^2 (2); *Paraleucobryum enerve* 6^2 (3); *P. longifolium* 3^1 (4); *Pellia* sp. 10^2 (2); *Philonotis tomentella* 4^3 (1), 3^1 (4); *Plagiochila asplenioides* 10^2 (2); *Plagiomnium undulatum* 3^5 (4); *Plagiothecium laetum* 3^2 (3); *Pohlia cruda* 2^1 (2); *P. elongata* 6^3 (3); *P. filum* 3^1 (3); *P. nutans* 10^3 (2); *Pohlia* sp. 4^2 (1); *Polytrichum longisetum* 3^3 (3); *P. piliferum* 2^2 (2); *P. sexangulare* 9^1 (1), 6^2 (2); *Polytrichum* sp. 3^2 (4); *Porella* sp. 2^2 (2); *Pseudoleskea incurvata* 3^1 (3), 6^2 (4); *Ptilidium ciliare* 4^2 (1); *Racomitrium aciculare* 3^2 (3); *R. canescens* 6^4 (3); *R. fasciculare* 2^2 (2); *R. heterostichum* 4^2 (1), 2^2 (2); *R. lanuginosum* 2^2 (2); *R. patens* 3^2 (4); *Rhizomnium pseudopunctatum* 4^2 (1); *Rhytidiadelphus triquetrus* 9^3 (1), 2^3 (2); *Rhytidiadelphus* sp. 6^3 (3), 6^5 (4); *Scapania compacta* 4^5 (1); *S. degenii* 2^3 (2); *S. undulata* 8^2 (2); *Scapania* sp. 4^2 (2), 6^3 (3); *Schistidium apocarpum* 4^3 (1); *Sphagnum girgensohnii* 4^1 (1), 3^3 (3); *S. palustre* 2^2 (2); *Sphagnum* sp. 3^5 (3); *Tortella tortuosa* 6^2 (2); *Tortula norvegica* 4^2 (2). – *Cladonia bellidiflora* 13^2 (1), 2^1 (2); *C. digitata* 3^2 (3); *C. pyxidata* 2^3 (2), 6^2 (3); *C. stricta* 8^3 (2); *C. sulphurina* 4^2 (1); *Cladonia* sp. 4^2 (1), 4^3 (2);

Icmadophila ericetorum 4^2 (1); *Peltigera aphthosa* 4^2 (2); *P. canina* 4^2 (1), 6^2 (4); *P. malacea* 4^1 (1), 2^1 (2); *P. rufescens* 2^1 (2), 3^1 (4).

Tab. 3. Communities of the alliances *Calamagrostion variae* (1, 2) and *Festucion carpaticae* (3) in Slovakia.
Convallario majalis-Calamagrostietum variae (1); *Geranio sylvatici-Calamagrostietum variae* (2); *Festucetum carpaticae* (3)

Community			1	2	3
Number of relevés			37	26	97
Average number of taxa			39	48	40
Diagnostic taxa of the associations					
	Achillea stricta	D1	**78**^{3}	.	.
QF	*Convallaria majalis*	D1	**65**^{3}	15^{2}	.
QF	*Galium schultesii*	D1	**49**^{2}	15^{3}	6^{2}
	Polygonatum odoratum	C1	**46**^{2}	.	.
Sc	*Pulsatilla slavica*	C1	**43**^{2}	.	.
	Brachypodium pinnatum	D1	**41**^{3}	8^{3}	1^{2}
	Bupleurum falcatum	C1	**38**^{2}	.	.
	Campanula rapunculoides	D1	**38**^{2}	.	.
	Securigera varia	D1	**38**^{2}	.	.
	Anthericum ramosum	C1	**22**^{2}	.	.
	Adenophora liliifolia	C1	**19**^{1}	.	.
	Knautia slovaca	C1	**19**^{3}	.	.
ES	*Carex *tatrorum*	D2	3^{1}	**77**^{4}	35^{3}
ES	*Helianthemum grandiflorum*	D2	.	**69**^{3}	36^{3}
Cv	*Phleum hirsutum*	D2	.	**58**^{3}	39^{3}
MU	*Geranium sylvaticum*	D2	3^{4}	**58**^{2}	84^{4}
Cv	*Achillea *alpestris*	D2	.	**54**^{3}	46^{3}
MU	*Astrantia major*	D2	16^{2}	**54**^{2}	60^{3}
Cv	*Campanula elliptica*	D2	8^{2}	**54**^{2}	32^{2}
Cv	*Campanula serrata*	D2	3^{2}	**54**^{2}	28^{2}
Cv	*Knautia maxima*	D2	5^{2}	**50**^{3}	12^{3}
	Leontodon hispidus	D2	5^{1}	**50**^{3}	42^{3}
MU	*Primula elatior*	D2	.	**50**^{2}	70^{3}
Cv	*Crepis mollis*	D2	.	**46**^{2}	48^{3}
	Silene vulgaris	D2	3^{1}	**46**^{2}	14^{3}
Cv	*Linum extraaxillare*	D2	.	**42**^{3}	38^{3}
	Ranunculus nemorosus	D2	.	**38**^{2}	3^{2}
	Viola biflora	D3	8^{3}	19^{3}	**56**^{3}
MU	*Bistorta major*	D3	.	.	**52**^{3}
	*Swertia *alpestris*	D3	11^{2}	19^{2}	**52**^{3}
Cv	*Luzula *rubella*	D3	5^{3}	8^{3}	**51**^{3}
MU	*Senecio subalpinus*	D3	.	8^{2}	**47**^{3}
NC	*Ligusticum mutellina*	D3	.	.	**36**^{3}
	Myosotis alpestris	D3	.	.	**29**^{2}
Calamagrostion variae					
	Calamagrostis varia	C	**99**^{8}	**99**^{8}	23^{4}
sa	*Knautia kitaibelii*	C	**41**^{2}	**23**^{2}	6^{3}
	Gymnadenia odoratissima	C	**16**^{1}	**12**^{2}	1^{2}
	Epipactis atrorubens	C	**30**^{1}	**8**^{2}	.

ES	*Carduus glaucinus*	D	**68^{3}**	**27^{2}**	14^{2}
sa	*Acinos alpinus*	D	**24^{2}**	**8^{2}**	.
Festucion carpaticae					
	Festuca carpatica	C	.	23^{2}	**99^{8}**
	Bartsia alpina	C	.	.	**33^{2}**
	Sesleria tatrae	D	.	15^{3}	**56^{3}**
	Luzula sylvatica	D	3^{2}	15^{3}	**48^{3}**
	Cortusa matthioli	D	16^{3}	8^{2}	**42^{3}**
Calamagrostietalia villosae					
	Laserpitium latifolium		89^{4}	81^{3}	14^{2}
	Cirsium erisithales		62^{2}	81^{3}	34^{3}
	*Pimpinella *rhodochlamys*		49^{3}	88^{3}	52^{4}
	Pyrethrum clusii		43^{2}	50^{2}	13^{2}
	Cyanus mollis		35^{2}	38^{3}	18^{3}
	Vicia oreophila		16^{3}	35^{2}	5^{2}
	*Solidago *minuta*		19^{1}	27^{2}	12^{3}
	Pleurospermum austriacum		11^{1}	23^{2}	4^{3}
ca	*Hieracium prenanthoides*		8^{3}	23^{2}	6^{2}
ca	*Dianthus *latifolius*		5^{2}	35^{2}	3^{2}
ca	*Calamagrostis arundinacea*		5^{3}	31^{2}	23^{2}
	Anemone narcissiflora		.	31^{3}	31^{3}
ca	*Vicia sylvatica*		.	31^{3}	4^{2}
ca	*Jacea pseudophrygia*		.	27^{2}	1^{3}
	Allium victorialis		.	19^{1}	1^{2}
	*Bupleurum *vapincense*		.	15^{3}	15^{3}
	Crepis conyzifolia		.	15^{2}	7^{2}
JT	*Campanula tatrae*		.	12^{2}	15^{2}
tf	*Rhodiola rosea*		.	4^{2}	31^{3}
tf	*Cerastium fontanum*		.	4^{2}	5^{2}
	Festuca picturata		.	.	15^{3}
cv	*Calamagrostis villosa*		.	.	12^{4}
tf	*Trisetum fuscum*		.	.	11^{3}
tf	*Carex aterrima*		.	.	4^{3}
cv	*Sempervivum *carpathicum*		.	.	1^{3}
	Trommsdorfia uniflora		.	.	1^{3}
	Gentiana punctata		.	.	1^{2}
Mulgedio-Aconitetea					
	Aconitum variegatum		22^{3}	15^{4}	4^{4}
	Gentiana asclepiadea		16^{2}	23^{2}	29^{2}
aa	*Silene dioica*		16^{2}	12^{2}	26^{2}
aa	*Ranunculus platanifolius*		8^{3}	4^{2}	7^{3}
	Thalictrum aquilegiifolium		5^{3}	12^{2}	21^{3}
Pc	*Chaerophyllum hirsutum*		5^{3}	8^{2}	38^{3}
de	*Delphinium elatum*		3^{2}	15^{3}	7^{3}
	*Valeriana *sambucifolia*		.	19^{2}	16^{3}
	Aconitum firmum		.	15^{3}	32^{3}
	Poa chaixii		.	8^{2}	25^{2}
	*Veratrum *lobelianum*		.	8^{2}	31^{3}
aa	*Adenostyles alliariae*		.	8^{2}	22^{3}

	Acetosa arifolia	.	4^{3}	37^{2}
Pc	*Carduus personata*	.	4^{2}	8^{3}
Pc	*Geranium phaeum*	.	4^{2}	1^{3}
Pc	*Petasites hybridus*	3^{3}	.	.
aa	*Milium effusum*	.	.	10^{2}
Pc	*Stellaria nemorum*	.	.	5^{2}
aa	*Doronicum austriacum*	.	.	3^{2}
aa	*Cicerbita alpina*	.	.	2^{3}
Pc	*Chrysosplenium alternifolium*	.	.	2^{2}
Pc	*Anthriscus nitida*	.	.	1^{3}
Elyno-Seslerietea				
	Phyteuma orbiculare	54^{2}	73^{2}	44^{2}
	Thesium alpinum	46^{2}	46^{2}	6^{2}
	Scabiosa lucida	41^{3}	88^{3}	36^{3}
	Sesleria albicans	38^{4}	62^{3}	16^{3}
	Festuca tatrae	38^{2}	35^{3}	10^{4}
	Libanotis pyrenaica	38^{3}	4^{7}	10^{3}
	Thymus pulcherrimus	32^{4}	31^{2}	10^{3}
	*Polygala *brachyptera*	32^{2}	15^{2}	12^{3}
	*Anthyllis *alpestris*	27^{2}	23^{3}	4^{4}
	Galium anisophyllon	24^{3}	62^{2}	39^{2}
	Bellidiastrum michelii	24^{2}	15^{3}	24^{3}
	Colymbada alpestris	22^{1}	4^{2}	2^{2}
	Ranunculus breyninus	16^{3}	27^{2}	31^{2}
	*Allium *montanum*	8^{2}	12^{5}	8^{2}
	Gentianella fatrae	3^{2}	15^{2}	1^{2}
	*Dianthus *praecox*	3^{2}	8^{2}	2^{2}
	Minuartia langii	3^{2}	4^{2}	2^{3}
	Euphrasia salisburgensis	11^{3}	12^{2}	.
	Tephroseris capitata	.	4^{2}	16^{2}
	Erysimum witmannii	22^{2}	.	.
	Leontodon incanus	19^{1}	.	.
Querco-Fagetea				
Fs	*Mercurialis perennis*	51^{2}	50^{2}	8^{3}
	Fragaria vesca	51^{2}	54^{2}	4^{2}
	Lilium martagon	43^{2}	27^{2}	27^{2}
	Hieracium murorum	41^{2}	38^{2}	6^{2}
	Poa nemoralis	27^{3}	38^{3}	13^{3}
	Melica nutans	24^{2}	15^{2}	1^{2}
	Polygonatum verticillatum	14^{2}	31^{2}	19^{3}
	Tithymalus amygdaloides	19^{2}	27^{2}	6^{2}
	Campanula trachelium	22^{2}	23^{2}	7^{3}
	Acer pseudoplatanus	19^{2}	8^{2}	1^{2}
	Myosotis sylvatica	11^{2}	12^{2}	11^{2}
	Campanula persicifolia	8^{1}	8^{2}	1^{2}
	Lathyrus vernus	8^{1}	8^{1}	5^{2}
	Dryopteris filix-mas	5^{2}	4^{2}	4^{2}
	Asarum europaeum	5^{1}	4^{2}	7^{3}
	Pulmonaria obscura	3^{2}	4^{2}	3^{2}
	Prenanthes purpurea	22^{2}	4^{2}	.

Carex digitata	19^{3}	8^{2}	.
Melittis melissophyllum	14^{1}	15^{2}	.
Phyteuma spicatum	.	12^{2}	26^{2}
Carex alba	27^{3}	.	.
Aquilegia vulgaris	27^{1}	.	.
Clematis alpina	22^{2}	.	.

Other taxa

Rubus saxatilis	59^{3}	35^{2}	7^{2}
Digitalis grandiflora	51^{2}	50^{2}	21^{3}
Lotus corniculatus	46^{2}	77^{3}	21^{2}
Heracleum sphondylium	46^{2}	35^{2}	73^{3}
Carlina acaulis	41^{2}	81^{3}	23^{3}
Origanum vulgare	41^{3}	27^{3}	10^{2}
Leucanthemum vulgare agg.	38^{3}	65^{2}	31^{2}
Valeriana tripteris	38^{3}	8^{3}	31^{3}
Tithymalus cyparissias	32^{2}	12^{2}	2^{3}
Melampyrum sylvaticum	32^{4}	4^{2}	1^{2}
Cardaminopsis arenosa agg.	24^{2}	35^{2}	13^{2}
Linum catharticum	24^{2}	35^{2}	3^{2}
Senecio nemorensis agg.	24^{2}	19^{2}	30^{3}
Tragopogon orientalis	16^{1}	38^{2}	6^{2}
Gymnadenia conopsea	16^{3}	27^{2}	11^{3}
Clinopodium vulgare	16^{2}	19^{5}	5^{2}
Jovibarba globifera	16^{2}	19^{2}	4^{2}
Laserpitium archangelica	16^{3}	4^{6}	3^{2}
Carex flacca	14^{1}	31^{2}	6^{3}
Picea abies	14^{2}	4^{2}	2^{2}
Soldanella carpatica	11^{3}	23^{2}	57^{3}
Euphrasia rostkoviana	11^{3}	19^{4}	1^{2}
Arabis hirsuta agg.	11^{2}	12^{1}	6^{2}
Veronica chamaedrys	11^{2}	4^{2}	4^{2}
Geranium robertianum	11^{3}	4^{3}	2^{3}
Cruciata glabra	8^{1}	18^{2}	3^{3}
Asplenium viride	8^{2}	15^{2}	3^{2}
Cystopteris fragilis	8^{2}	8^{2}	5^{2}
Hylotelephium argutum	8^{2}	8^{3}	2^{3}
Sorbus aucuparia	8^{2}	4^{2}	1^{1}
Hypericum maculatum	5^{2}	35^{2}	54^{3}
Vaccinium vitis-idaea	5^{2}	15^{2}	8^{2}
Ajuga reptans	5^{2}	12^{2}	1^{2}
Briza media	3^{1}	38^{3}	1^{2}
Salix silesiaca	3^{1}	27^{2}	6^{2}
Saxifraga paniculata	3^{3}	23^{3}	5^{2}
Vaccinium myrtillus	3^{2}	15^{2}	18^{3}
Rhinanthus pulcher	3^{1}	15^{2}	10^{2}
Dactylis glomerata	3^{2}	12^{2}	11^{3}
Ranunculus pseudomontanus	3^{2}	8^{2}	12^{3}
Rubus idaeus	3^{2}	8^{2}	8^{2}
Polystichum lonchitis	3^{2}	8^{2}	3^{2}
Arabis alpina	3^{2}	4^{5}	16^{3}

Taraxacum officinale agg.	3^{2}	4^{2}	4^{2}
Ranunculus sp.	3^{2}	4^{2}	1^{2}
Galium album	32^{3}	.	4^{3}
Carex ornithopoda	27^{2}	4^{2}	.
Gymnocarpium robertianum	22^{3}	8^{2}	.
Trommsdorfia maculata	19^{1}	27^{2}	.
Listera ovata	3^{2}	23^{2}	.
Trifolium pratense	.	35^{2}	18^{3}
Anthoxanthum alpinum	.	31^{3}	24^{2}
Potentilla aurea	.	31^{3}	34^{2}
Gentianella lutescens	.	27^{2}	6^{3}
Agrostis capillaris	.	27^{3}	3^{2}
Alchemilla sp. div.	.	23^{3}	62^{3}
Crepis paludosa	.	23^{3}	18^{3}
Parnassia palustris	.	23^{3}	36^{3}
Poa alpina	.	19^{3}	26^{2}
Homogyne alpina	.	12^{2}	37^{3}
Geum rivale	.	8^{2}	36^{3}
Epilobium alpestre	.	4^{2}	23^{2}
Pedicularis hacquetii	.	4^{2}	13^{2}
Carlina vulgaris	24^{2}	.	.
Bistorta vivipara	.	.	19^{2}
Deschampsia cespitosa	.	.	19^{2}
Oreogeum montanum	.	.	18^{2}
Mosses			
Hylocomium splendens	14^{3}	4^{2}	6^{3}
Tortella tortuosa	11^{3}	35^{4}	21^{3}
Rhytidium rugosum	11^{3}	8^{2}	1^{5}
Ditrichum flexicaule	5^{4}	8^{3}	1^{2}
Ctenidium molluscum	5^{3}	4^{2}	4^{2}
Thuidium philiberti	3^{2}	12^{3}	4^{3}
Plagiochila asplenioides	3^{4}	8^{2}	1^{2}
Fissidens dubius	3^{2}	4^{2}	4^{2}

Rarely occurring taxa with low constancy:

E_1: *Abies alba* 11^{1} (1); *Acetosa scutata* 2^{6} (3); *Aconitum moldavicum* 8^{1} (1); *Actaea spicata* 3^{2} (1); *Adoxa moschatellina* 3^{2} (3); *Aegopodium podagraria* 3^{2} (1); *Ajuga genevensis* 3^{1} (1); *Allium ochroleucum* 8^{1} (1); *A. *sibiricum* 1^{1} (3); *Allium* sp. 1^{2} (3); *Androsace chamaejasme* 4^{2} (2); *A. lactea* 3^{2} (1); *Angelica sylvestris* 5^{3} (1), 1^{3} (3); *Archangelica officinalis* 4^{1} (2), 2^{2} (3); *Arctostaphyllos uva-ursi* 3^{1} (1); *Arenaria tenella* 4^{2} (2); *Aruncus vulgaris* 4^{2} (2); *Asperula cynanchica* 3^{1} (1); *A. tinctoria* 16^{2} (1); *Astragalus alpinus* 6^{4} (3); *A. australis* 4^{2} (2); *A. frigidus* 4^{4} (3); *A. glycyphyllos* 3^{1} (1); *A. norvegicus* 1^{6} (3); *Avenella flexuosa* 3^{2} (3); *Avenula planiculmis* 4^{2} (2), 1^{2} (3); *A. versicolor* 4^{2} (2), 3^{2} (3); *Betonica officinalis* 3^{1} (1), 4^{2} (2); *Biscutella laevigata* 4^{2} (2), 12^{2} (3); *Botrychium lunaria* 8^{3} (2), 14^{2} (3); *Buphthalmum salicifolium* 8^{2} (1); *Bupleurum ranunculoides* 4^{2} (2), 2^{3} (3); *Callianthemum coriandriifolium* 3^{4} (3); *Campanula carpatica* 5^{3} (1); *C. cochleariifolia* 3^{2} (1), 4^{2} (2); *C. moravica* 5^{2} (1); *Campanula* sp. 11^{3} (1); *Cardamine impatiens* 3^{2} (1), 1^{2} (3); *C. pratensis* 5^{3} (3); *Cardamine* sp. 3^{2} (1); *Cardaminopsis halleri* 4^{2} (2), 16^{4} (3); *Cardaminopsis* sp. 8^{2} (1); *Carex humilis* 5^{2} (1); *C. muricata* 3^{2} (1), 4^{1} (2); *Carex* sp. 3^{2} (1); *Cephalanthera rubra* 3^{1} (1); *Cerastium *glandulosum* 32 (3); *C. holosteoides* 3^{1} (1);

Chaerophyllum aromaticum 3^1 (1), 6^3 (3); *Chamaecytisus hirsutus* 161 (1); *Chamerion angustifolium* 2^2 (3); *Cherleria sedoides* 4^3 (2); *Cimicifuga europaea* 8^1 (1), 8^3 (2); *Cirsium eriophorum* 2^2 (3); *C. pannonicum* 11^1 (1); *Coeloglossum viride* 7^2 (3); *Colymbada scabiosa* 3^2 (1); *Coronilla vaginalis* 14^2 (1); *Cotoneaster* sp. 3^1 (1); *Crepis alpestris* 11^1 (1); *C. jacquinii* 3^1 (1), 1^2 (3); *C. praemorsa* 1^2 (3); *Cyanus *dominii* 5^1 (1); *Cypripedium calceolus* 5^1 (1); *Cystopteris montana* 3^2 (2), 2^2 (3); *Dactylorhiza* sp. 4^2 (2); *Daphne mezereum* 15^2 (2), 4^2 (3); *Delphinium oxysepalum* 63 (3); *Dentaria enneaphyllos* 8^2 (2), 1^2 (3); *Dianthus nitidus* 4^2 (2), 9^2 (3); *D. *alpestris* 15^3 (2), 3^2 (3); *Dryopteris dilatata* 2^2 (3); *Epilobium montanum* 8^2 (1), 3^2 (3); *E. tetragonum* 1^2 (3); *Epipactis helleborine* 5^1 (1); *Equisetum palustre* 1^2 (3); *Erigeron acris* 8^2 (2); *E. alpinus* 1^3 (3); *E. atticus* 2^3 (3); *E. hungaricus* 4^2 (2), 4^3 (3); *Erysimum wahlenbergii* 6^2 (3); *Eupatorium cannabinum* 3^2 (1); *Euphrasia kerneri* 4^1 (2); *E. picta* 12^2 (2), 2^2 (3); *E. tatrae* 7^2 (3); *Fagus sylvatica* 3^2 (1), 4^2 (2); *Festuca amethystina* 3^4 (1); *F. pallens* 11^3 (1); *F. rubra* 12^2 (2); *F. supina* 2^3 (3); *F. versicolor* 4^5 (2), 3^2 (3); *Filipendula ulmaria* 4^2 (2), 3^3 (3); *Galeobdolon luteum* s. l. 4^1 (2), 1^2 (3); *Galeopsis speciosa* 1^2 (3); *Galeopsis* sp. 1^2 (3); *Galium glaucum* 5^1 (1); *Galium* sp. 3^3 (1); *Genista pilosa* 8^2 (1); *G. tinctoria* 3^5 (1); *Gentiana clusii* 4^3 (2); *G. cruciata* 3^1 (1); *G. punctata* 1^2 (3); *G. verna* 4^2 (2), 1^2 (3); *Gentianella* sp. 8^2 (1); *Gentianopsis ciliata* 3^2 (1); *Geranium sanguineum* 11^2 (1); *Gymnocarpium drypteris* 4^2 (2), 2^2 (3); *Hedysarum hedysaroides* 11^3 (3); *Hesperis *nivea* 4^3 (2), 3^3 (3); *Hieracium bifidum* 8^2 (1), 4^1 (2); *H. bupleuroides* 8^2 (1); *H. dentatum* 1^2 (3); *H. epimedium* 3^3 (3); *H. lachenalii* 12^2 (2); *H. laevigatum* 16^1 (1); *H. sabaudum* 3^2 (1); *H. stygium* 1^1 (3); *H. umbellatum* 14^1 (1); *H. villosum* 4^2 (2), 9^2 (3); *Hieracium* sp. 8^2 (3); *Hippocrepis comosa* 3^2 (1); *Hordelymus europaeus* 4^2 (2); *Huperzia selago* 1^2 (3); *Hypericum hirsutum* 4^2 (2); *H. perforatum* 11^2 (1); *Hypochaeris glabra* 3^5 (1); *H. radicata* 5^3 (1); *Inula salicina* 3^2 (1); *Isopyrum thalictroides* 3^2 (3); *Jacea *oxylepis* 1^2 (3); *Juniperus sibirica* 4^2 (2); *Kernera saxatilis* 8^2 (1); *Knautia arvensis* 15^3 (3); *Knautia* sp. 1^2 (3); *Lamium maculatum* 4^2 (2), 1^3 (3); *L. purpureum* 3^3 (1); *Lathyrus pratensis* 8^2 (2), 8^3 (3); *Lembotropis nigricans* 3^2 (1); *Leontodon pseudotaraxaci* 2^3 (3); *Leontopodium alpinum* 8^2 (2); *Leucanthemum rotundifolium* 3^3 (1), 10^3 (3); *Lunaria rediviva* 4^2 (2), 2^3 (3); *Luzula sudetica* 1^3 (3); *Maianthemum bifolium* 4^2 (2), 1^2 (3); *Melampyrum nemorosum* 3^2 (1); *M. pratense* 3^1 (1); *Moehringia muscosa* 3^2 (1); *Mycelis muralis* 14^2 (1); *Myosotis scorpioides* agg. 92 (3); *Omalotheca norvegica* 4^2 (3); *Orchis ustulata* 4^2 (2); *Orobanche alsatica* 4^2 (2); *O. caryophyllacea* 3^3 (1); *O. reticulata* 5^1 (1); *Orthilia secunda* 3^3 (1); *Oxalis acetosella* 14^4 (1), 2^2 (3); *Oxytropis halleri* 2^3 (3); *Paris quadrifolia* 15^2 (2), 9^2 (3); *Pedicularis verticillata* 14^2 (3); *Petasites albus* 3^5 (1), 2^2 (3); *Phelipanche purpurea* 5^2 (1); *Phleum rhaeticum* 4^2 (2), 11^2 (3); *Ph. pratense* 1^3 (3); *Picris *villarsii* 1^3 (3); *Pilosella aurantiaca* 3^2 (3); *Pinus mugo* 5^2 (3); *Platanthera bifolia* 5^1 (1), 4^2 (2); *Poa stiriaca* 11^2 (1); *Polypodium vulgare* 5^2 (1); *Polystichum aculeatum* 4^3 (2), 1^2 (3); *Potentilla crantzii* 7^2 (3); *Primula auricula* 3^2 (1); *Prunella vulgaris* 4^1 (2), 1^2 (3); *Pseudorchis albida* 2^2 (3); *Pteridium aquilinum* 3^1 (1); *Pulmonaria mollis* 4^2 (2), 1^2 (3); *Ranunculus alpestris* 1^2 (3); *R. auricomus* agg. 4^2 (2); *R. lanuginosus* 4^2 (2); *R. polyanthemos* 3^1 (1); *R. thora* 1^3 (3); *Rhinanthus alectorolophus* 16^4 (1); *Rh. serotinus* 11^2 (1); *Rhinanthus* sp. 3^2 (1), 1^2 (3); *Rhodax alpestris* 11^2 (1), 1^2 (3); *Ribes uva-crispa* 5^2 (1); *Rosa pendulina* 19^2 (1), 1^2 (3); *Salix alpina* 10^3 (3); *S. caprea* 5^2 (1), 4^1 (2); *S. hastata* 4^3 (3); *S. kitaibeliana* 2^3 (3); *S. myrsinifolia* 1^2 (3); *S. reticulata* 8^2 (3); *S. retusa* 1^5 (3); *Salix* sp. 1^3 (3); *Salvia glutinosa* 3^3 (1); *S. pratensis* 3^2 (1); *Sanguisorba minor* 3^1 (1); *Saussurea alpina* 6^3 (3); *S. discolor* 1^2 (3); *Saxifraga adscendens* 3^2 (1), 2^2 (3); *S. aizoides* 1^2 (3); *S. moschata* 1^2 (3); *S. rotundifolia* 8^3 (3); *Scorzonera hispanica* 5^1 (1); *Scrophularia scopolii* 4^2 (2), 6^2 (3); *Sedum album* 3^2 (1); *S. atratum* 4^2 (2), 1^1 (3); *Selaginella selaginoides* 4^2 (2), 6^2 (3); *Senecio* sp. 12 (3); *Seseli osseum* 8^2 (1); *Silene bupleuroides* 5^3 (1); *S. *sillingeri* 3^1 (1); *Soldanella hungarica* 7^4 (3); *Sorbus aria* 11^2 (1); *S. chamaemespilus* 4^2 (2); *Stachys*

alpina 8^2 (2), 4^2 (3); *Symphytum tuberosum* 4^2 (2, 3); *Taraxacum fontanum* 3^2 (3); *T. nigricans* 2^3 (3); *Taraxacum* sp. 7^2 (3); *Tephroseris crispa* 7^3 (3); *Thalictrum minus* 11^2 (1), 5^2 (3); *Thymus alpestris* 8^4 (2), 8^2 (3); *Th. pulegioides* 8^2 (2), 3^3 (3); *Thymus* sp. 7^2 (3); *Tofieldia calyculata* 5^2 (1), 1^2 (3); *Traunsteinera globosa* 4^1 (2), 5^3 (3); *Trifolium badium* 4^2 (2), 4^3 (3); *T. flexuosum* 3^1 (1); *T. repens* 8^1 (2), 1^2 (3); *Trisetum alpestre* 3^2 (3); *Trollius altissimus* 12^1 (2), 15^3 (3); *Tussilago farfara* 5^3 (1), 4^2 (3); *Urtica dioica* 3^3 (1), 2^2 (3); *Verbascum nigrum* 5^3 (1); *Veronica fruticans* 4^2 (2), 1^2 (3); *V. teucrium* 3^1 (1); *Vicia cracca* 8^1 (1), 3^3 (3); *V. sepium* 4^2 (2), 8^2 (3); *Vincetoxicum hirundinaria* 11^1 (1); *Viola hirta* 8^2 (1); *Viola *sudetica* 4^2 (2), 1^2 (3); *V. riviniana* 3^1 (1).

E_0: *Barbilophozia lycopodioides* 3^2 (3); *Brachythecium glareosum* 2^2 (3); *B. reflexum* 1^5 (3); *B. rutabulum* 3^2 (3); *B. salebrosum* 3^3 (2); *B. starkei* 2^6 (3); *B. velutinum* 4^3 (3); *Brachythecium* sp. 5^3 (1), 1^2 (3); *Bryoerythrophyllum rubrum* 1^2 (3); *Bryum capillare* 4^1 (2), 1^2 (3); *B. elegans* 1^3 (3); *B. schleicheri* 3^3 (1); *Calliergonella cuspidata* 3^2 (3); *Callicladium haldanianum* 4^2 (2); *Campylium halleri* 1^2 (3); *C. stellatum* 4^3 (2); *Campylium* sp. 1^2 (3); *Cirriphyllum piliferum* 2^4 (3); *Desmatodon latifolius* 1^2 (3); *Dicranella subulata* 4^2 (2); *Drepanocladus uncinatus* 4^2 (2), 1^2 (3); *Encalypta streptocarpa* 4^3 (2), 1^2 (3); *Entodon concinnus* 4^2 (2); *Errhynchium praelongum* 3^2 (3); *E. schleicheri* 4^2 (2), 23 (3); *E. striatum* 4^2 (2); *Fissidens taxifolius* 1^2 (3); *Fissidens* sp. 3^2 (1); *Homalothecium sericeum* 8^4 (2); *Hylocomium umbratum* 1^3 (3); *Hypnum cupressiforme* 8^3 (2); *Isypterygiopsis pulchella* 1^5 (3); *Lescuraea mutabilis* 4^2 (2); *L. plicata* 4^2 (3); *Metzgeria* sp. 4^2 (1); *M. spinosum* 6^5 (3); *Mnium marginatum* 3^3 (3); *Mnium* sp. 5^4 (1), 4^2 (3); *Orthothecium intricatum* 4^5 (2); *Plagiochila* sp. 5^3 (1); *Plagiomnium affine* 8^2 (2), 9^4 (3); *P. cuspidatum* 1^3 (3); *P. rostratum* 2^2 (3); *P. undulatum* 8^4 (1); *Plagiomnium* sp. 1^2 (3); *Plagiothecium denticulatum* 3^2 (3); *Plagiothecium* sp. 3^5 (1); *Pleurozium schreberi* 5^4 (1); *Polytrichum* sp. 3^7 (1); *Porella cordeana* 1^2 (3); *Preissia quadrata* 3^3 (1); *Pseudoleskeella catenulata* 4^2 (2); *Pseudoscleropodium purum* 3^2 (1); *Ptilium* sp. 3^2 (1); *Racomitrium canescens* 4^3 (2); *Radula complanata* 4^2 (2), 1^2 (3); *Rhizomnium punctatum* 5^3 (1), 6^4 (3); *Rhizomnium* sp. 1^3 (3); *Rhodobryum roseum* 3^3 (1); *Rhynchostegium murale* 2^2 (3); *Rhytidiadelphus squarrosus* 12^3 (3); *Rh. triquetrus* 12^3 (2), 9^4 (3); *Rhytidiadelphus* sp. 3^3 (1), 2^6 (3); *Schistidium apocarpum* 4^2 (2); *Thuidium abietinum* 3^3 (1); *Thuidium* sp. 3^2 (1); *Timmia bavarica* 1^2 (3); *Tortella* sp. 5^5 (1); *Tortula ruralis* 1^2 (3); *T. subulata* 1^2 (3); *Tritomaria quinquedentata* 2^3 (3). – *Cetraria islandica* 4^3 (2); *Cladonia fimbriata* 3^2 (1), 4^3 (2); *Cladonia furcata* 4^3 (2); *C. pyxidata* 11^3 (1), 2^3 (3); *C. squamosa* 3^2 (1); *C. symphycarpa* 4^3 (2); *Cladonia* sp. 1^2 (3); *Peltigera aphthosa* 1^3 (3); *P. lepidophora* 4^2 (2); *P. polydactylon* 4^2 (2); *Peltigera* sp. 5^4 (1), 4^3 (2); *Solorina saccata* 3^3 (1).

Tab. 4. Communities of the suballiances *Adenostylenion alliariae* (1–2) and *Delphinenion elati* (3–6) in Slovakia.
Ranunculo platanifolii-Adenostyletum alliariae (1), subass. *milietosum alpicolae* (1a), subass. *ranunculetosum pseudoplatani* (1b); *Adenostylo alliariae-Athyrietum alpestris* (2), subass. *typicum* (2a), subass. *avenelletosum flexuosae* (2b); *Aconito firmi-Adenostyletum alliariae* (3); *Petasito kablikiani-Senecietum hercynici* (4), subass. *doronicetosum austriaci* (4a), subass. *crepidetosum mollis* (4b); *Chaerophyllo hirsuti-Cicerbitetum alpinae* (5); *Geranio robertiani-Delphinietum elati* (6), subass. *orobanchetosum flavae* (6a), subass. *ranunculetosum platanifolii* (6b)

Community		1a	1b	1	2a	2b	2	3	4a	4b	4	5	6a	6b	6
Number of relevés		56	37	93	15	9	14	54	5	8	13	5	5	5	10
Average number of taxa		23	21	22	15	13	14	30	43	48	46	22	35	47	41
Diagnostic taxa of the associations															
	Poa granitica	C1,D1b	7^{4}	$\mathbf{41^{2}}$	$\mathbf{20^{3}}$	.	.	.	.	.	.	.	.	.	.	.
aa	*Doronicum austriacum*	D1*,D4a	63^{5}	62^{3}	$\mathbf{62^{4}}$	7^{2}	33^{2}	17^{2}	54^{3}	$\mathbf{99^{6}}$	13^{3}	46^{6}	99^{5}	.	.	.
Cv	*Festuca picturata*	D1	71^{3}	78^{3}	$\mathbf{74^{3}}$	20^{2}	.	13^{2}	4^{2}	.	.	.	.	.	.	.
aa	*Silene dioica*	D1*	52^{2}	46^{3}	$\mathbf{49^{3}}$	13^{2}	.	8^{2}	44^{2}	80^{2}	75^{2}	77^{2}	40^{3}	40^{2}	80^{2}	60^{2}
MU	*Aconitum firmum*	D1*	36^{3}	65^{3}	$\mathbf{47^{3}}$	20^{3}	.	13^{3}	61^{5}	40^{3}	13^{2}	23^{2}	80^{3}	.	.	.
	Viola biflora	D1*	54^{3}	38^{3}	$\mathbf{47^{3}}$	20^{3}	.	13^{3}	67^{3}	99^{3}	88^{3}	92^{3}	99^{4}	99^{2}	40^{4}	70^{2}
	Phleum rhaeticum	D1*	29^{2}	51^{2}	$\mathbf{38^{2}}$	.	.	.	15^{2}	20^{2}	.	8^{2}	.	.	.	.
	Potentilla aurea	D1*	34^{2}	22^{2}	$\mathbf{29^{2}}$	.	.	.	17^{2}	.	13^{2}	8^{2}	.	.	.	.
aa	*Athyrium distentifolium*	tC2,D5*	32^{4}	24^{3}	29^{4}	99^{9}	99^{9}	$\mathbf{99^{9}}$	28^{3}	.	.	.	$\mathbf{99^{4}}$	.	.	.
	Saxifraga rotundifolia	C3	.	.	.	.	.	.	$\mathbf{28^{5}}$	.	.	.	.	.	.	.
	Alchemilla sp. div.	D3	45^{3}	27^{2}	38^{3}	7^{2}	.	4^{2}	$\mathbf{94^{4}}$	20^{2}	25^{3}	23^{2}	40^{3}	.	20^{2}	10^{2}
	Deschampsia cespitosa	D3	9^{3}	35^{3}	19^{3}	13^{3}	.	8^{3}	$\mathbf{61^{3}}$	.	.	.	.	20^{2}	.	10^{2}
	Ligusticum mutellina	D3*	93^{3}	92^{3}	92^{3}	60^{2}	22^{2}	46^{2}	$\mathbf{54^{2}}$	.	.	.	.	.	.	.
tf	*Rhodiola rosea*	D3*	25^{2}	35^{2}	29^{2}	.	.	.	$\mathbf{41^{3}}$	.	13^{2}	8^{2}	.	.	.	.
	Cardaminopsis halleri	D4	11^{2}	.	6^{2}	20^{1}	.	13^{1}	.	80^{3}	99^{4}	$\mathbf{92^{4}}$	.	.	20^{2}	10^{2}
	Mnium spinosum (E_0)	D4	4^{5}	14^{3}	8^{3}	.	.	.	8^{3}	80^{4}	88^{5}	$\mathbf{85^{5}}$	.	.	.	.

Cv	*Pimpinella *rhodochlamys*	D4	.	.	.	.	.	.	9^{2}	40^{3}	99^{4}	**77^{4}**	.	.	20^{2}	10^{2}
Cv	*Cirsium erisithales*	D4,D6b	.	.	.	.	.	.	9^{2}	60^{3}	75^{3}	**69^{3}**	.	.	**40^{2}**	20^{2}
	Dactylis glomerata	D4	.	.	.	.	.	.	9^{3}	40^{3}	88^{3}	**69^{3}**	.	20^{2}	40^{4}	30^{3}
	Myosotis alpestris	D4	5^{2}	.	3^{2}	.	.	.	4^{2}	40^{5}	88^{3}	**69^{3}**	.	.	.	.
Fs	*Pulmonaria obscura*	D4	.	.	.	.	.	.	.	60^{2}	75^{2}	**69^{2}**	.	20^{3}	40^{3}	30^{3}
ca	*Calamagrostis arundinacea*	D4	2^{3}	.	1^{3}	.	33^{2}	13^{2}	9^{3}	20^{3}	88^{4}	**62^{4}**	.	.	.	.
QF	*Galium schultesii*	D4,D6b	.	.	.	.	.	.	4^{4}	40^{2}	75^{4}	**62^{3}**	.	.	**60^{2}**	30^{2}
	Hylotelephium argutum	D4	7^{2}	.	4^{2}	7^{5}	.	4^{5}	7^{2}	60^{3}	63^{3}	**62^{3}**	.	.	20^{3}	10^{3}
	Trisetum flavescens	D4	.	.	.	.	.	.	11^{3}	40^{2}	75^{3}	**62^{3}**	.	.	20^{3}	10^{3}
	Scrophularia scopolii	D4	.	.	.	.	.	.	6^{2}	60^{3}	50^{2}	**54^{2}**	.	.	40^{3}	20^{3}
	Cystopteris fragilis	D4	.	.	.	.	.	.	4^{2}	40^{2}	50^{2}	**46^{2}**	.	.	.	.
Fs	*Paris quadrifolia*	D4	.	.	.	.	.	.	4^{2}	40^{3}	50^{2}	**46^{2}**	.	20^{2}	.	10^{2}
	Eurhynchium praelongum (E_0)	D4	.	.	.	.	.	.	2^{7}	80^{4}	25^{3}	**46^{3}**	.	.	.	.
aa	*Cicerbita alpina*	D1a,D5	**54^{4}**	11^{3}	37^{4}	40^{4}	33^{3}	38^{4}	37^{4}	40^{7}	38^{2}	38^{4}	**99^{4}**	.	.	.
	Leucanthemum rotundifolium	D5	18^{3}	5^{4}	13^{3}	7^{3}	11^{1}	8^{2}	17^{3}	20^{5}	13^{2}	15^{4}	**99^{4}**	.	.	.
	Petasites albus	D5,D6a	.	.	.	.	.	.	4^{5}	.	.	.	**99^{6}**	**80^{4}**	.	40^{4}
	Myosotis scorpioides agg.	D5,D6a	5^{2}	.	3^{2}	.	.	.	15^{3}	.	.	.	**80^{3}**	**60^{2}**	.	30^{2}
fs	*Prenanthes purpurea*	D5	.	.	.	.	.	.	.	.	.	.	**60^{2}**	.	20^{2}	10^{2}
	Urtica dioica	D6	.	.	.	.	.	.	17^{3}	40^{2}	.	15^{2}	.	99^{2}	99^{3}	**99^{3}**
Fs	*Geranium robertianum*	D6	.	.	.	.	.	.	.	.	.	.	.	99^{2}	60^{3}	**80^{3}**
Fs	*Acer pseudoplatanus*	D6	.	.	.	.	.	.	2^{1}	.	25^{2}	15^{2}	.	40^{2}	60^{1}	**50^{2}**
	Fragaria vesca	D6	.	.	.	.	.	.	2^{2}	.	13^{2}	8^{2}	.	60^{2}	40^{2}	**50^{2}**
	Carex muricata	D6	.	.	.	.	.	.	.	.	.	.	.	20^{2}	40^{2}	**30^{2}**
	Clinopodium vulgare	D6	.	.	.	.	.	.	.	.	.	.	.	20^{2}	40^{2}	**30^{2}**
Differential taxa of the subassociations																	
aa	*Milium effusum*	D1a,D4a	**68^{4}**	22^{3}	49^{4}	87^{3}	11^{2}	58^{3}	50^{4}	**99^{3}**	.	38^{3}	.	.	40^{3}	20^{3}
MU	*Geranium sylvaticum*	D1a,D6b	**54^{3}**	5^{2}	34^{3}	20^{2}	.	13^{2}	81^{4}	99^{4}	88^{3}	92^{3}	99^{3}	.	**60^{3}**	30^{3}

	Hypericum maculatum	D1a	**48³**	.	29³	7²	33²	17²	63³	99³	99³	99³	.	40²	60³	50³
	Ranunculus pseudomontanus	D1b	23²	**62³**	39²	7¹	.	4¹	2¹	.	.	.	.	.	.	.
	Poa alpina	D1b	7²	**41³**	20³	7²	.	4²	17³	.	.	.	.	.	20²	10²
	Doronicum stiriacum	D1b	.	**27²**	11²	27³	.	17³	.	.	.	.	.	.	.	.
	Desmatodon latifolius (E_0)	D1b	4²	**41³**	18³	.	.	.	.	.	.	.	.	.	.	.
	Rubus idaeus	D2b	4²	.	2²	7³	**99⁴**	42⁴	26³	40³	.	15³	20³	60²	20³	40³
	Oxalis acetosella	D2b	4³	.	2³	7²	**99³**	42³	20³	20²	.	8²	40³	60³	20²	40³
	Vaccinium myrtillus	D2b	4²	.	2²	.	**89³**	33³	28³	.	.	.	.	.	.	.
	Dryopteris dilatata	D2b	4²	8²	5²	.	**67³**	25³	4³	.	.	.	.	.	.	.
MU	*Gentiana asclepiadea*	D2b	13³	.	8³	13²	**56³**	29²	43²	20³	50³	38³	60³	20²	60²	40²
	Filipendula ulmaria	D4a	.	.	.	.	.	.	7²	**80³**	13³	38³	.	.	.	.
	Ribes petraeum	D4a	.	.	.	.	.	.	.	**80²**	13²	38²	.	.	.	.
Cv	*Crepis mollis*	D4b	.	.	.	.	.	.	6²	.	**88²**	54²	.	.	20²	10²
MU	*Astrantia major*	D4b	2³	.	1³	.	.	.	20²	.	**75³**	46³	.	.	.	.
QF	*Poa nemoralis*	D4b	.	.	.	.	.	.	6²	.	**75³**	46³	.	20³	60⁶	40⁵
Pc	*Petasites kablikianus*	D4b,D6a	2³	.	1³	.	.	.	2²	.	**50⁷**	31⁷	.	**80⁶**	.	40⁶
fc	*Festuca carpatica*	D4b	2²	.	1²	.	.	.	31³	.	**50⁴**	31⁴	.	.	20²	10²
Fs	*Daphne mezereum*	D4b	.	.	.	.	.	.	6²	.	**50³**	31³	.	20¹	40²	30¹
Cv	*Linum extraaxillare*	D4b	.	.	.	.	.	.	.	.	**50²**	31²	.	.	20³	10³
	Origanum vulgare	D4b	.	.	.	.	.	.	.	.	**50³**	31³	.	.	40³	20³
Cv	*Pleurospermum austriacum*	D4b	.	.	.	.	.	.	.	.	**50²**	31²	.	20²	.	10²
Cv	*Campanula elliptica*	D4b	.	.	.	.	.	.	2²	.	**38²**	23²	.	.	20²	10²
	Eurhynchium angustirete (E_0)	D4b	.	.	.	.	.	.	.	.	**50³**	31³	.	.	.	.
	Crepis paludosa	D6a	2²	.	1²	.	.	.	28³	20²	38³	31³	40³	**80³**	.	40³
	Roegneria canina	D6a	.	.	.	.	.	.	4³	.	13³	8³	.	**60⁴**	.	30⁴
Fs	*Stachys sylvatica*	D6a	.	.	.	.	.	.	.	.	.	.	.	**60³**	.	30³
	Orobanche flava	D6a	.	.	.	.	.	.	.	.	.	.	.	**60²**	.	30²
Fs	*Impatiens noli-tangere*	D6a	.	.	.	.	.	.	.	.	.	.	.	**60²**	.	30²

aa	*Ranunculus platanifolius*	D6b	64^{3}	49^{3}	58^{3}	53^{3}	.	33^{3}	15^{2}	40^{3}	13^{2}	23^{3}	99^{3}	.	**80^{2}**	40^{2}
fs	*Polygonatum verticillatum*	D6b	4^{4}	.	2^{4}	.	11^{2}	4^{2}	7^{2}	99^{2}	63^{4}	77^{3}	.	.	**80^{3}**	40^{3}
Cv	*Luzula *rubella*	D6b	11^{2}	.	6^{2}	7^{3}	.	4^{3}	22^{3}	40^{3}	13^{3}	23^{3}	.	.	**60^{2}**	30^{2}
	Adenostylenion alliariae															
SH	*Luzula alpinopilosa*	D	**50^{3}**	**95^{4}**	**68^{3}**	**53^{3}**	**.**	**33^{3}**	11^{3}	.	.	.	.	.	.	.
Cv	*Gentiana punctata*	D	**80^{2}**	**76^{3}**	**78^{3}**	**60^{3}**	**.**	**38^{3}**	4^{2}	.	.	.	.	.	.	.
JT	*Oreogeum montanum*	D	**80^{3}**	**78^{3}**	**80^{3}**	**67^{2}**	**11^{2}**	**46^{2}**	.	.	.	.	.	.	.	.
	Delphinenion elati															
	Delphinium elatum	t6	.	.	.	.	.	.	**13^{4}**	**60^{2}**	**63^{3}**	**62^{3}**	**.**	**99^{7}**	**99^{7}**	**99^{7}**
	Epilobium alpestre	D	5^{3}	.	3^{3}	.	.	.	**50^{3}**	**60^{3}**	**63^{2}**	**62^{3}**	**40^{2}**	**.**	**20^{3}**	**10^{3}**
Pc	*Chaerophyllum hirsutum*	D	13^{2}	.	8^{2}	.	.	.	**72^{4}**	**80^{3}**	**88^{4}**	**85^{4}**	**99^{6}**	**99^{6}**	**40^{5}**	**70^{6}**
Fs	*Galeobdolon luteum* s. l.	D,D6b	.	.	.	.	.	.	**4^{4}**	**99^{3}**	**38^{2}**	**62^{3}**	**80^{5}**	**.**	**60^{2}**	**30^{2}**
	Luzula sylvatica	D	9^{3}	.	5^{3}	13^{3}	11^{2}	13^{2}	**54^{3}**	**60^{2}**	**50^{2}**	**54^{2}**	**80^{2}**	**.**	**20^{2}**	**10^{2}**
Pc	*Stellaria nemorum*	D,D6a	14^{3}	3^{2}	10^{2}	.	22^{3}	8^{3}	**59^{4}**	**20^{2}**	**.**	**8^{2}**	**80^{4}**	**99^{5}**	**.**	**50^{5}**
	Cortusa matthioli	D	.	.	.	.	.	.	**24^{3}**	**20^{2}**	**50^{2}**	**38^{2}**	**.**	**40^{2}**	**.**	**20^{2}**
	Adenostylion alliariae, Mulgedio-Aconitetea															
MU	*Acetosa arifolia*		91^{3}	68^{4}	82^{4}	93^{4}	78^{3}	88^{3}	87^{4}	60^{4}	75^{3}	69^{3}	.	.	20^{5}	10^{5}
MU	*Primula elatior*		14^{3}	14^{3}	14^{3}	7^{3}	.	4^{3}	65^{3}	80^{2}	63^{2}	69^{2}	.	.	40^{2}	20^{2}
aa	*Adenostyles alliariae*		99^{8}	99^{8}	99^{8}	93^{4}	33^{4}	71^{4}	96^{7}	60^{7}	50^{6}	54^{6}	99^{7}	.	.	.
MU	*Veratrum *lobelianum*		95^{3}	84^{3}	90^{3}	73^{3}	67^{3}	71^{3}	52^{2}	80^{3}	63^{5}	69^{4}	40^{3}	.	.	.
cv	*Calamagrostis villosa*		91^{4}	43^{3}	72^{4}	60^{3}	89^{2}	71^{3}	20^{3}	20^{2}	13^{3}	15^{3}	60^{2}	.	.	.
MU	*Bistorta major*		46^{3}	43^{3}	45^{3}	40^{3}	11^{2}	29^{2}	33^{3}	99^{2}	99^{3}	99^{3}	.	.	.	.
MU	*Solidago *minuta*		36^{2}	22^{2}	30^{2}	7^{1}	11^{2}	8^{2}	13^{2}	.	.	.	.	.	.	.
MU	*Thalictrum aquilegiifolium*		13^{2}	.	8^{2}	7^{2}	.	4^{2}	**31^{2}**	**99^{2}**	**75^{2}**	**85^{2}**	**40^{3}**	**20^{1}**	**60^{2}**	**40^{2}**
MU	*Valeriana *sambucifolia*		2^{2}	.	1^{2}	.	.	.	**24^{2}**	**80^{3}**	**88^{3}**	**85^{3}**	**20^{3}**	**99^{3}**	**40^{3}**	**70^{3}**
MU	*Senecio subalpinus*		27^{3}	5^{2}	18^{3}	.	.	.	56^{2}	20^{2}	50^{2}	38^{2}	60^{3}	.	.	.
MU	*Poa chaixii*		21^{3}	3^{2}	14^{3}	.	.	.	26^{3}	40^{2}	50^{3}	46^{2}	.	.	20^{2}	10^{2}

Pc	*Chrysosplenium alternifolium*	2^{3}	3^{2}	2^{3}	.	.	.	**28^{3}**	**80^{3}**	**63^{3}**	**69^{3}**	**20^{2}**	**80^{3}**	**40^{4}**	**60^{3}**
Pc	*Carduus personata*	2^{2}	.	1^{2}	.	.	.	**30^{3}**	**80^{4}**	**63^{4}**	**69^{4}**	**.**	**60^{3}**	**60^{2}**	**60^{2}**
Cv	*Achillea *alpestris*	2^{2}	.	1^{2}	.	.	.	.	13^{2}	15^{2}	8^{2}	.	.	40^{2}	20^{2}
Cv	*Campanula serrata*	9^{1}	.	5^{1}	.	.	.	24^{2}	.	.	.	.	.	40^{3}	20^{3}
Cv	*Crepis conyzifolia*	9^{2}	.	5^{2}	.	.	.	.	.	13^{2}	8^{2}	.	.	20^{5}	10^{5}
Cv	*Knautia maxima*	2^{1}	.	1^{1}	.	.	.	.	.	.	.	.	40^{4}	.	20^{4}
Cv	*Anemone narcissiflora*	2^{2}	5^{2}	3^{2}	.	.	.	2^{3}	.	.	.	.	.	.	.
tf	*Trisetum fuscum*	4^{3}	30^{2}	14^{2}	.	.	.	7^{3}	.	.	.	.	.	.	.
tf	*Taraxacum alpinum*	4^{2}	19^{2}	10^{2}	.	.	.	.	.	.	.	.	.	.	.
cv	*Sempervivum *carpathicum*	5^{2}	3^{1}	4^{2}	.	.	.	.	.	.	.	.	.	.	.
Cv	*Campanula tatrae*	20^{2}	.	8^{2}	.	.	.	.	.	.	.	.	.	.	.
MU	*Aconitum variegatum*	.	.	.	.	.	.	6^{2}	20^{3}	25^{2}	23^{2}	.	60^{3}	40^{3}	50^{3}
Cv	*Phleum hirsutum*	.	.	.	.	.	.	2^{2}	.	13^{3}	8^{3}	.	.	20^{2}	10^{2}
cr	*Calamagrostis varia*	.	.	.	.	.	.	6^{2}	.	13^{2}	8^{2}	.	20^{6}	60^{5}	40^{5}
Cv	*Cyanus mollis*	.	.	.	.	.	.	6^{2}	20^{6}	38^{2}	31^{3}	.	.	20^{2}	10^{2}
ca	*Hieracium prenanthoides*	.	.	.	.	.	.	2^{6}	.	25^{3}	15^{3}	.	.	20^{2}	10^{2}
Pc	*Geranium phaeum*	.	.	.	.	.	.	2^{2}	.	.	.	.	.	40^{3}	20^{3}
Cv	*Vicia oreophila*	.	.	.	.	.	.	2^{2}	.	.	.	.	.	20^{2}	10^{2}
Cv	*Bupleurum longifolium*	.	.	.	.	.	.	.	.	25^{3}	15^{3}	.	.	20^{3}	10^{3}
Cv	*Laserpitium latifolium*	.	.	.	.	.	.	.	.	25^{2}	15^{2}	.	.	20^{2}	10^{2}
ca	*Vicia sylvatica*	.	.	.	.	.	.	.	20^{2}	13^{3}	15^{3}	.	.	.	.
Pc	*Petasites hybridus*	.	.	.	.	.	.	.	.	.	.	.	20^{6}	.	10^{6}
Cv	*Pyrethrum clusii*	.	.	.	.	.	.	.	.	.	.	.	.	20^{2}	10^{2}
Querco-Fagetea															
	Phyteuma spicatum	34^{2}	11^{2}	25^{2}	.	.	.	19^{2}	60^{2}	38^{2}	46^{2}	.	.	20^{1}	10^{1}
	Dryopteris filix-mas	.	3^{2}	1^{2}	.	.	.	19^{2}	60^{2}	13^{2}	31^{2}	.	60^{2}	40^{4}	50^{3}
	Mercurialis perennis	.	.	.	.	.	.	2^{2}	20^{6}	38^{6}	31^{6}	.	.	40^{3}	20^{3}
	Myosotis sylvatica	.	.	.	.	.	.	17^{3}	40^{3}	.	15^{3}	.	60^{2}	20^{2}	40^{2}
	Lilium martagon	.	.	.	.	.	.	2^{1}	20^{2}	38^{2}	31^{2}	.	.	20^{1}	10^{1}

Epilobium montanum	.	.	.	.	.	.	7^{3}	.	.	.	20^{2}	20^{2}	60^{2}	40^{2}
Lathyrus vernus	.	.	.	.	.	.	2^{2}	.	.	.	.	20^{2}	40^{3}	30^{2}
Aegopodium podagraria	.	.	.	.	.	.	2^{2}	.	.	.	.	20^{2}	20^{3}	20^{3}
Tithymalus amygdaloides	.	.	.	.	.	.	2^{2}	.	.	.	.	.	40^{3}	20^{3}
Asarum europaeum	.	.	.	.	.	.	.	.	13^{2}	8^{2}	.	.	20^{2}	10^{2}
Cardamine impatiens	.	.	.	.	.	.	.	.	.	.	.	40^{2}	20^{3}	30^{2}
Aruncus vulgaris	.	.	.	.	.	.	.	.	.	.	.	20^{1}	20^{2}	20^{2}
Lunaria rediviva	.	.	.	.	.	.	.	.	.	.	.	20^{2}	20^{3}	20^{3}
Mycelis muralis	.	.	.	.	.	.	.	.	.	.	.	20^{2}	20^{2}	20^{2}
Ranunculus lanuginosus	.	.	.	.	.	.	.	.	.	.	.	20^{2}	20^{2}	20^{2}
Hordelymus europaeus	.	.	.	.	.	.	.	.	.	.	.	40^{3}	.	20^{3}
Campanula trachelium	.	.	.	.	.	.	.	.	.	.	.	40^{2}	.	20^{2}
Melica nutans	.	.	.	.	.	.	.	.	.	.	.	.	40^{3}	20^{3}
Other taxa														
Homogyne alpina	68^{2}	59^{3}	65^{2}	40^{2}	89^{2}	58^{2}	41^{2}	.	13^{2}	8^{2}	40^{3}	.	20^{2}	10^{2}
Senecio nemorensis agg.	**25^{3}**	.	15^{3}	13^{3}	.	8^{3}	**74^{3}**	**99^{6}**	**99^{7}**	**99^{7}**	**40^{2}**	**60^{2}**	**40^{4}**	**50^{3}**
Soldanella carpatica	57^{2}	73^{2}	63^{2}	53^{3}	.	33^{3}	56^{2}	20^{2}	50^{2}	38^{2}	.	.	.	.
Avenella flexuosa	21^{2}	19^{2}	20^{2}	20^{2}	11^{2}	17^{2}	19^{3}	.	.	.	.	.	40^{3}	20^{3}
Anthoxanthum odoratum agg.	23^{2}	32^{2}	27^{2}	13^{2}	.	8^{2}	13^{2}	.	13^{2}	8^{2}	.	.	20^{2}	10^{2}
Heracleum sphondylium	9^{2}	3^{3}	6^{2}	.	.	.	**50^{2}**	**40^{2}**	**50^{2}**	**46^{2}**	**.**	**40^{2}**	**80^{2}**	**60^{2}**
Geum rivale	7^{2}	.	4^{2}	.	.	.	56^{3}	60^{3}	75^{3}	69^{3}	.	40^{3}	.	20^{3}
Arabis alpina	4^{3}	.	2^{3}	.	.	.	24^{3}	.	25^{2}	15^{2}	.	80^{3}	40^{6}	60^{4}
Chamerion angustifolium	5^{2}	.	3^{2}	7^{2}	11^{2}	8^{2}	4^{5}	.	.	.	.	20^{2}	.	10^{2}
Streptopus amplexifolius	4^{2}	3^{1}	3^{2}	7^{2}	11^{2}	8^{2}	2^{2}	.	.	.	.	.	.	.
Sedum alpestre	2^{2}	11^{2}	5^{2}	7^{2}	.	4^{2}	2^{2}	.	.	.	.	.	.	.
Taraxacum sp.	2^{1}	11^{2}	5^{1}	.	.	.	11^{2}	.	.	.	.	20^{2}	.	10^{2}
*Caltha *laeta*	4^{4}	5^{3}	4^{3}	.	.	.	15^{4}	.	.	.	20^{2}	.	.	.
Melampyrum sylvaticum	2^{1}	.	1^{1}	.	.	.	2^{2}	.	.	.	.	.	20^{2}	10^{2}
Leontodon hispidus	4^{2}	.	2^{2}	.	.	.	4^{2}	.	13^{2}	8^{2}	.	.	.	.

Pedicularis hacquetii	5^{1}	.	3^{1}	.	.	.	.	20^{2}	13^{3}	15^{3}	.	.	.	.
Silene vulgaris	2^{2}	.	1^{2}	.	.	.	2^{2}	.	.	.	.	.	20^{5}	10^{5}
Soldanella hungarica	4^{6}	.	2^{6}	.	.	.	2^{2}	.	.	.	.	.	20^{1}	10^{1}
Archangelica officinalis	4^{4}	3^{7}	3^{5}	.	.	.	13^{4}	.	.	.	.	.	.	.
Dryopteris carthusiana	.	5^{2}	2^{2}	7^{2}	.	4^{2}	9^{2}	.	.	.	.	.	.	.
Festuca supina	.	3^{2}	1^{2}	.	11^{2}	4^{2}	.	.	.	.	.	.	.	.
Asplenium viride	.	3^{2}	1^{2}	.	.	.	.	.	.	.	.	.	40^{2}	20^{2}
Pinus mugo	.	.	.	.	11^{3}	4^{3}	2^{2}	40^{4}	.	15^{4}	.	.	.	.
Sorbus aucuparia	.	.	.	.	11^{2}	4^{2}	2^{2}	20^{2}	.	8^{2}	.	.	40^{1}	20^{1}
Angelica sylvestris	.	.	.	.	.	.	2^{2}	20^{2}	50^{2}	38^{2}	.	40^{2}	20^{2}	30^{2}
Adoxa moschatellina	.	.	.	.	.	.	11^{2}	60^{3}	13^{3}	31^{3}	.	.	20^{1}	10^{1}
Polystichum lonchitis	.	.	.	.	.	.	2^{2}	.	25^{2}	15^{2}	.	.	20^{2}	10^{2}
Valeriana tripteris	.	.	.	.	.	.	9^{2}	20^{2}	.	8^{2}	40^{3}	.	20^{2}	10^{2}
Salix silesiaca	.	.	.	.	.	.	9^{2}	20^{2}	.	8^{2}	.	20^{3}	.	10^{3}
Lamium maculatum	.	.	.	.	.	.	2^{2}	.	13^{2}	8^{2}	.	40^{6}	40^{3}	40^{4}
Rubus saxatilis	.	.	.	.	.	.	2^{3}	.	38^{2}	23^{2}	.	.	20^{2}	10^{2}
Cystopteris montana	.	.	.	.	.	.	4^{2}	.	.	.	.	40^{2}	40^{3}	40^{2}
Veronica chamaedrys	.	.	.	.	.	.	4^{2}	.	.	.	.	40^{2}	20^{2}	30^{2}
Poa trivialis	.	.	.	.	.	.	2^{2}	.	.	.	.	40^{2}	.	20^{2}
Rosa pendulina	.	.	.	.	.	.	2^{1}	20^{2}	13^{2}	15^{2}	.	.	.	.
Digitalis grandiflora	.	.	.	.	.	.	.	.	25^{2}	15^{2}	.	40^{2}	40^{4}	40^{3}
Cimicifuga europaea	.	.	.	.	.	.	.	.	25^{4}	15^{4}	.	.	20^{2}	10^{2}
Ajuga reptans	.	.	.	.	.	.	.	.	.	.	.	40^{4}	.	20^{4}
Picea abies	.	.	.	.	.	.	.	.	.	.	.	40^{2}	.	20^{2}
Mosses														
Brachythecium rutabulum	4^{6}	3^{3}	3^{5}	13^{2}	.	8^{2}	.	20^{5}	.	8^{5}	.	20^{8}	.	10^{8}
Plagiothecium denticulatum	7^{2}	16^{2}	11^{2}	27^{3}	11^{2}	21^{3}	6^{2}	20^{1}	13^{2}	15^{2}	.	.	.	.
Rhytidiadelphus squarrosus	5^{2}	3^{2}	4^{2}	7^{3}	.	4^{3}	4^{3}	60^{2}	25^{3}	38^{2}	.	.	.	.
Cirriphyllum piliferum	2^{8}	5^{3}	3^{4}	.	.	.	.	.	13^{1}	8^{1}	.	.	.	.

Drepanocladus uncinatus	4^2	5^2	4^2	.	11^2	4^2	.	20^1	.	8^1	.	.	.	.
Tortella tortuosa	4^2	.	2^2	.	.	.	2^2	.	25^2	15^2	.	.	.	.
Brachythecium reflexum	18^3	41^5	27^4	13^2	11^2	13^2	4^6	.	.	.	.	.	.	.
Brachythecium salebrosum	9^4	3^2	6^4	7^2	.	4^2	2^6	.	.	.	.	.	.	.
Brachythecium starkei	9^4	22^3	14^3	.	.	.	13^4	.	.	.	.	.	.	.
Mnium sp.	4^2	.	2^2	7^1	.	4^1	11^2	.	.	.	.	.	.	.
Polytrichum sp.	2^2	.	1^2	7^2	.	4^2	11^2	.	.	.	.	.	.	.
Plagiomnium affine	2^3	.	1^3	.	.	.	4^5	.	.	.	.	20^2	.	10^2
Plagiochila asplenioides	2^2	.	1^2	.	.	.	.	20^2	13^2	15^2	.	.	.	.
Rhodobryum roseum	4^2	.	2^2	.	.	.	.	.	38^2	23^2	.	.	.	.
Brachythecium glareosum	2^5	.	1^5	.	.	.	.	.	25^3	15^3	.	.	.	.
Brachythecium velutinum	2^2	.	1^2	.	.	.	.	.	25^2	15^2	.	.	.	.
Conocephalum conicum	.	.	.	.	.	.	2^6	20^3	25^3	23^2	.	.	.	.
Plagiomnium cuspidatum	.	.	.	.	.	.	2^2	40^3	.	15^3	.	.	.	.
Eurhynchium schleicheri	.	.	.	.	.	.	.	40^3	13^2	23^2	.	.	.	.
Rhytidiadelphus triquetrus	.	.	.	.	.	.	.	20^3	25^4	23^4	.	.	.	.

D1* differential taxa against the association *Adenostylo-Athyrietum alpestris*
D3*, D5* differential taxa against the other communities of the suballiance *Delphinenion elati*

Rarely occurring taxa with low constancy:
E_1: *Acetosa scutata* 5^2 (1a), 3^2 (1); *Aconitum vulparia* 20^6 (6b), 10^6 (6); *Agrostis capillaris* 2^2 (3); *A. stolonifera* 6^2 (3); *Ajuga genevensis* 20^2 (6a), 10^2 (6); *Alliaria petiolata* 20^3 (6b), 10^3 (6); *Allium *sibiricum* 2^2 (3); *A. *montanum* 20^2 (6b), 10^2 (6); Pc *Anthriscus nitida* 2^2 (3); *Anthriscus* sp. 20^2 (6a), 10^2 (6); *Anthyllis *alpestris* 20^3 (6b), 10^3 (6); *Asplenium ruta-muriaria* 20^2 (6b), 10^2 (6); *A. trichomanes* 20^2 (6b), 10^2 (6); *Avenula versicolor* 3^2 (1b), 1^2 (1); *Botrychium lunaria* 20^1 (6b), 10^1 (6); *Calamagrostis* sp. 4^3 (3); *Callianthemum coriandrifolium* 2^2 (1a), 1^2 (1); *Cardamine amara* 2^2 (3), 20^2 (6a), 10^2 (6); *C. pratensis* 2^2 (1a), 1^2 (1); *Cardaminopsis arenosa* agg. 17^2 (3), 40^4 (6b), 20^4 (6); tf *C. neglecta* 2^2 (1a), 1^2 (1); tf *Carex aterrima* 4^2 (1a), 2^2 (1); *C. buxbaumii* 2^2 (3); Cv *C. *silicicola* 5^2 (1a), 3^2 (1); *C. *tatrorum* 20^2 (6b), 10^2 (6); *C. sylvatica* 20^2 (6a), 10^2 (6); *Carlina acaulis* 20^2 (6b), 10^2 (6); *Cerastium *glandulosum* 4^2 (3); *C. holosteoides* 2^1 (3); *Cerinthe glabra* 13^5 (4b), 8^5 (4); *Chaerophyllum aromaticum* 2^3 (3), 20^2 (6a), 10^2 (6); *Chelidonium majus* 20^2 (6b), 10^2 (6); *Cirsium oleraceum* 4^3 (3), 20^3 (6a), 10^3 (6); *C. palustre* 2^1 (3); *Clematis alpina* 20^2 (6b), 10^2 (6);

Coeloglossum viride 2^{1} (3); *Conioselinum tataricum* 2^{1} (3); *Crepis jacquinii* 2^{2} (3); *Dactylorhiza fuchsii* 40^{1} (6a), 20^{1} (6); *Delphinium oxysepalum* 11^{4} (3); *Delphinium* sp. 2^{3} (3); *Epilobium alsinifolium* 15^{2} (3); *E. anagallidifolium* 2^{2} (1a, 1), 3^{1} (1b); *E. collinum* 2^{1} (3); *Equisetum arvense* 20^{2} (6a), 10^{2} (6); *Erysimum wahlenbergii* 13^{2} (4b), 8^{2} (4); *Euphrasia salisburgensis* 2^{2} (3); *E. tatrae* 2^{2} (3); *Fagus sylvatica* 20^{1} (6a), 10^{1} (6); *Festuca gigantea* 20^{2} (6a), 10^{2} (6); *F. rubra* 2^{2} (3); *F. tatrae* 20^{3} (6b), 10^{3} (6); *Festuca* sp. 2^{2} (1a), 1^{2} (1); *Galeopsis speciosa* 20^{2} (6b), 10^{2} (6); *G. tetrahit* 20^{2} (6a), 10^{2} (6); *Galeopsis* sp. 20^{1} (6b), 10^{1} (6); *Galium album* 4^{2} (3), 40^{4} (6b), 20^{4} (6); *G. anisophyllum* 4^{2} (3), 40^{3} (6b), 20^{3} (6); *Gentiana frigida* 3^{2} (1b), 1^{2} (1); *Glechoma hederacea* s. l. 20^{2} (6a), 20^{3} (6b, 6); *Gymnadenia conopsea* 2^{2} (3), 20^{1} (6b), 10^{1} (6); *Gymnocarpium dryopteris* 2^{2} (3), 20^{2} (6b), 10^{2} (6); *G. robertianum* 20^{3} (6b), 10^{3} (6); cv *Hieracium alpinum* agg. 5^{2} (1a), 3^{2} (1); *H. murorum* 20^{2} (6b), 10^{2} (6); *Hieracium* sp. 2^{2} (3); *Huperzia selago* 2^{1} (1a), 1^{1} (1), 2^{2} (3); *Hylotelephium maximum* 20^{2} (6b), 10^{2} (6); *Hypericum hirsutum* 20^{2} (6b), 10^{2} (6); *Jovibarba globifera* 20^{3} (6b), 10^{3} (6); *Juniperus communis* 11^{2} (2b), 4^{2} (2); *Knautia arvensis* 20^{2} (6b), 10^{2} (6); *Lapsana communis* 20^{2} (6b), 10^{2} (6); *Lathyrus pratensis* 20^{2} (6b), 10^{2} (6); *Leucanthemum margaritae* 20^{2} (6b), 10^{2} (6); *Libanotis pyrenaica* 13^{2} (4b), 8^{2} (4); *Linum catharticum* 20^{1} (6b), 10^{1} (6); *Lonicera nigra* 20^{2} (4a), 8^{2} (4); *L. xylosteum* 20^{1} (6b), 10^{1} (6); *Lotus corniculatus* 20^{2} (6b), 10^{2} (6); *Maianthemum bifolium* 2^{1} (3); *Omalotheca norvegica* 5^{1} (1a), 3^{2} (1b), 4^{1} (1), 4^{2} (3); *O. supina* 3^{2} (1b), 1^{2} (1); *O. sylvatica* 2^{1} (3); *Oxyria digyna* 2^{2} (1a, 1, 3), 3^{2} (1b); *Parnassia palustris* 6^{2} (3); *Phyteuma orbiculare* 13^{2} (4b), 8^{2} (4); *Poa laxa* 2^{2} (1a), 1^{2} (1); *P. pratensis* 7^{1} (2a), 4^{1} (2); *P. stiriaca* 20^{2} (6a), 10^{2} (6); *Polemonium caeruleum* 20^{2} (6a), 10^{2} (6); *Polygala *brachyptera* 20^{2} (6b), 10^{2} (6); *Polypodium vulgare* 20^{2} (6b), 10^{2} (6); *Polystichum aculeatum* 20^{3} (4a), 8^{3} (4); *Primula minima* 3^{2} (1b), 1^{2} (1); *Pseudorchis albida* 2^{1} (1a), 1^{1} (1); *Pulsatilla scherfelii* 3^{2} (1b), 1^{2} (1); *Ranunculus acris* 2^{3} (1a, 1), 3^{2} (1b); *R. alpestris* 20^{2} (6b), 10^{2} (6); *R. breyninus* 4^{2} (3), 20^{3} (6b), 10^{3} (6); *R. nemorosus* 11^{2} (1b), 4^{2} (1), 2^{1} (3); *R. polyanthemos* 2^{2} (3), 20^{2} (6b), 10^{2} (6); *Rhinanthus pulcher* 5^{2} (1a), 2^{2} (1), 13^{2} (4b), 8^{2} (4); *Rhinanthus* sp. 20^{1} (6b), 10^{1} (6); *Rubus caesius* 20^{2} (6b), 10^{2} (6); *Rumex alpinus* 9^{3} (3); *Salix caprea* 20^{1} (6b), 10^{1} (6); *Salvia glutinosa* 20^{2} (6a), 10^{2} (6); *Sanicula europaea* 20^{2} (6a), 10^{2} (6); *Saxifraga androsacea* 2^{3} (3); *S. carpatica* 3^{2} (1b), 1^{2} (1); *S. hieraciifolia* 2^{1} (3); *S. paniculata* 4^{2} (3), 20^{3} (6b), 10^{3} (6); *S. wahlenbergii* 4^{2} (3); *Scabiosa lucida* 2^{2} (3), 20^{2} (6b), 10^{2} (6); *Scrophularia nodosa* 20^{2} (6a), 10^{2} (6); *Sesleria albicans* 20^{2} (6b), 10^{2} (6); *S. tatrae* 9^{2} (3), 13^{3} (4b), 8^{3} (4); *Silene pusilla* 4^{2} (3); *Stachys alpina* 20^{5} (6b), 10^{5} (6); *Swertia *alpestris* 3^{2} (1b), 1^{2} (1), 6^{3} (3); *Symphytum tuberosum* 2^{2} (3); *Thesium alpinum* 20^{2} (6a), 10^{2} (6); *Thlaspi *tatrense* 20^{1} (6b), 10^{1} (6); *Thymus pulcherrimus* 20^{3} (6b), 10^{3} (6); *Tragopogon orientalis* 20^{1} (6b), 10^{1} (6); *Trifolium badium* 2^{2} (3); *T. orbelicum* 2^{2} (3); *Trollius altissimus* 7^{3} (3); Cv *Trommsdorfia uniflora* 2^{1} (1a), 1^{1} (1); *Tussilago farfara* 4^{2} (3), 20^{2} (6a), 10^{2} (6); *Vaccinium vitis-idaea* 2^{3} (3); *Veronica alpina* 5^{1} (1b), 2^{1} (1), 4^{2} (3); *Veronica* sp. 2^{1} (3), 20^{2} (6b), 10^{2} (6); *Vicia cracca* 20^{2} (6b), 10^{2} (6); *V. sepium* 7^{2} (3), 40^{2} (6b), 20^{2} (6); *Viola tricolor* 20^{1} (6b), 10^{1} (6).

E_0: *Amblystegium serpens* 2^{3} (1a), 1^{3} (1); *Anomodon viticulosus* 2^{3} (1a), 1^{3} (1); *Barbilophozia lycopodioides* 13^{2} (2b), 8^{2} (2); *Bartramia ithyphylla* 3^{3} (1b), 1^{3} (1); *Brachythecium rivulare* 2^{3} (3); *Brachythecium* sp. 3^{3} (1b), 1^{3} (1), 13^{6} (3); *Bryum capillare* 13^{1} (4b),

8^{1} (4); *B. pallescens* 2^{3} (1a), 1^{3} (1); *B. weigelii* 2^{3} (1a), 1^{3} (1); *Bryum* sp. 4^{3} (1a, 1), 5^{3} (1b), 4^{2} (3); *Calypogeia azurea* 22^{2} (2b), 8^{2} (2); *Campylium stellatum* 13^{4} (2a), 8^{4} (2); *Ceratodon purpureus* 2^{2} (1a), 1^{2} (1); *Chiloscyphus polyanthos* 2^{2} (1a), 1^{2} (1); *Cirriphyllum cirrosum* 3^{1} (1b), 1^{1} (1), 2^{2} (3); *Cratoneuron* sp. 2^{3} (3); *Dicranella heteromalla* 3^{3} (1b), 1^{3} (1); *Dicranum scoparium* 2^{2} (3), 20^{3} (4a), 8^{3} (4); *Dicranum* sp. 2^{2} (3); *Distichium capillaceum* 2^{2} (3); *Eurhynchium striatum* 13^{3} (4b), 8^{3} (4); *Eurhynchium* sp. 2^{3} (3); *Fissidens dubius* 13^{2} (4b), 8^{2} (4); *F. taxifolius* 2^{2} (1a), 1^{2} (1); *Fissidens* sp. 20^{2} (4a), 8^{2} (4); *Grimmia* sp. 2^{2} (3); *Hylocomium splendens* 7^{2} (2a), 4^{2} (2), 20^{2} (4a), 8^{2} (4); *Hypnum cupressiforme* 33^{4} (2b), 13^{4} (2); *Hypnum* sp. 2^{7} (3); *Jungermannia obovata* 2^{3} (3); *Kiarea starkei* 7^{2} (2a), 4^{2} (2); *Kiarea* sp. 3^{2} (1b), 1^{2} (1); *Lescuraea atrovirens* 5^{1} (1a), 11^{2} (1b), 8^{2} (1); *L. mutabilis* 2^{2} (1a), 5^{3} (1b), 3^{3} (1); *Leskea polycarpa* 11^{5} (1a), 11^{3} (1b), 11^{4} (1); *Marchantia polymorpha* 2^{3} (3); *Marsupella sphacelata* 3^{2} (1b), 1^{2} (1); *Mnium marginatum* 13^{5} (4b), 8^{5} (4); *M. spinulosum* 2^{2} (3), 20^{2} (4a), 8^{2} (4); *Oligotrichum hercynicum* 3^{2} (1b), 1^{2} (1); *Palustriella decipiens* 2^{5} (3); *Pellia neesiana* 5^{3} (1b), 2^{3} (1); *Pellia* sp. 2^{2} (1a), 1^{2} (1); *Philonotis fontana* 3^{2} (1b), 1^{2} (1); *Ph. seriata* 2^{1} (1a), 1^{1} (1); *Philonotis* sp. 6^{2} (3); *Plagiomnium rostratum* 3^{1} (1b), 1^{1} (1), 6^{2} (3); *P. undulatum* 2^{2} (3); *Plagiomnium* sp. 2^{3} (1a), 1^{3} (1); *Plagiothecium cavifolium* 2^{6} (1a), 1^{6} (1); *P. curvifolium* 2^{6} (1a), 1^{6} (1), 11^{2} (2b), 4^{2} (2); *P. laetum* 25^{2} (4b), 15^{2} (4); *P. nemorale* 2^{2} (1a), 3^{3} (1b), 2^{3} (1); *P. platyphyllum* 2^{3} (1a, 1), 3^{3} (1b); *Plagiothecium* sp. 5^{3} (1a), 2^{3} (1); *Pleurozium schreberi* 3^{2} (1b), 1^{2} (1), 11^{2} (2b), 4^{2} (2); *Pohlia drummondii* 8^{6} (1b), 3^{6} (1); *P. ludwigii* 8^{3} (1b), 3^{3} (1), 4^{2} (3); *P. nutans* 2^{3} (1a), 5^{3} (1b), 3^{3} (1); *P. wahlenbergii* 3^{5} (1b), 1^{5} (1); *Pohlia* sp. 5^{2} (1b), 2^{2} (1); *Polytrichum alpinum* 5^{2} (1a), 8^{2} (1b), 6^{2} (1); *P. formosum* 7^{3} (1a), 4^{3} (1), 4^{5} (3); *P. juniperinum* 7^{3} (2a), 4^{3} (2); *P. piliferum* 3^{2} (1b), 1^{2} (1); *Pseudoleskea incurvata* 2^{3} (1a), 14^{8} (1b), 6^{7} (1); *Pseudoleskeella nervosa* 3^{1} (1b), 1^{1} (1); *Racomitrium heterostichum* 5^{3} (1b), 2^{3} (1); *Rhizomnium magnifolium* 2^{5} (3); *Rh. punctatum* 2^{5} (1a), 1^{5} (1), 20^{3} (2a), 13^{3} (2); *Rhynchostegium murale* 13^{3} (4b), 8^{3} (4); *Rhytidiadelphus subpinnatus* 2^{1} (1a), 3^{5} (1b), 2^{3} (1); *Scapania uliginosa* 3^{1} (1b), 1^{1} (1); *Schistidium strictum* (Turn.) Loeske ex Mart. 7^{1} (2a), 4^{1} (1); *Splachnum sphaericum* 3^{1} (1b), 1^{1} (1); *Tritomaria exsecta* 3^{2} (1b), 1^{2} (1). – *Cetraria islandica* 3^{5} (1b), 1^{5} (1); *Cladonia coccifera* 3^{3} (1b), 1^{3} (1); *C. mitis* 3^{2} (1b), 1^{2} (1).

Tab. 5. *Geranio robertiani-Delphinietum elati* ass. nov.
subass. *orobanchetosum flavae* subass. nov. (r. 1–5), subass. *ranunculetosum platanifolii* subass. nov. (r. 6–10)

Number of relevé			1	2	3	4	5	6	7	8	9	10	St
Number of taxa			32	24	40	40	38	46	46	39	45	57	%
Diagnostic taxa of the association													
de	*Delphinium elatum*	t	2a	2b	4	4	4	2b	3	4	2b	3	100
	Urtica dioica	D	+	+	1	+	1	+	1	2m	+	+	100
Fs	*Geranium robertianum*	D	+	1	+	+	+	.	+	2a	+	.	80
EA	*Fragaria vesca*	D	+	+	.	.	+	+	.	.	.	+	50
Fs	*Acer pseudoplatanus*	D	+	.	+	.	.	r	+	r	.	.	50
	Carex muricata	D	+	.	.	.	.	.	+	+	.	.	30
	Clinopodium vulgare	D	.	.	+	.	.	.	+	.	.	+	30
Differential taxa of the subassociations													
Pc	*Stellaria nemorum*		1	1	2b	2a	2b	.	.	.	.	.	50
Pc	*Petasites kablikianus*		.	2a	2b	3	3	.	.	.	.	.	40
fs	*Petasites albus*		2a	2a	.	+	1	.	.	.	.	.	40
ai,cl	*Crepis paludosa*		+	+	+	2a	.	.	.	.	.	.	40
cl	*Myosotis nemorosa*		+	.	.	+	+	.	.	.	.	.	30
Fs	*Stachys sylvatica*		.	+	2a	+	.	.	.	.	.	.	30
Pc	*Orobanche flava*		.	.	+	+	+	.	.	.	.	.	30
ai	*Roegneria canina*		.	.	2b	1	+	.	.	.	.	.	30
Fs	*Impatiens noli-tangere*		.	.	+	+	1	.	.	.	.	.	30
aa	*Ranunculus platanifolius*		.	.	.	.	.	+	+	+	+	.	40
fs	*Polygonatum verticillatum*		.	.	.	.	.	+	+	.	1	1	40
Cv	*Luzula luzuloides*		.	.	.	.	.	1	+	.	.	+	30
MU	*Geranium sylvaticum*		.	.	.	.	.	+	.	.	+	2b	30
QF	*Galium schultesii*		.	.	.	.	.	+	+	1	.	.	30
Fs	*Galeobdolon montanum*		.	.	.	.	.	.	+	+	+	.	30
Cv	*Cirsium erisithales*		.	.	.	.	.	.	+	.	.	+	20
Differential taxa of the suballiance *Delphinenion elati*													
Pc	*Valeriana *sambucifolia*		+	+	1	1	2a	.	+	1	.	.	70
	Heracleum sphondylium		.	.	+	+	.	.	+	+	+	1	60
Pc	*Carduus personata*		.	.	1	+	1	+	.	+	.	+	60
Fs,EA	*Senecio nemorensis* agg.		.	.	+	+	+	+	2a	.	.	.	50
	Cortusa matthioli		+	.	.	.	+	.	.	.	.	.	20
cl	*Geum rivale*		.	.	.	+	1	.	.	.	.	.	20
ac	*Luzula sylvatica*		.	.	.	.	.	.	+	.	.	.	10
	Epilobium alpestre		.	.	.	.	.	.	.	.	.	1	10
Adenostylion alliariae*, *Mulgedio-Aconitetea													
Pc	*Chaerophyllum hirsutum*		4	2a	2b	2a	3	+	4	.	.	.	70
Pc,ai	*Chrysosplenium alternifolium*		.	+	+	1	1	+	2b	.	.	.	60
aa	*Silene dioica*		.	.	+	+	.	+	+	1	.	+	60
	Aconitum variegatum		.	.	+	+	1	.	+	.	1	.	50
MU,cr	*Calamagrostis varia*		2b	.	.	.	.	4	.	+	.	2a	40
	Gentiana asclepiadea		+	.	.	.	.	1	+	.	.	+	40

	Thalictrum aquilegiifolium	.	.	.	r	.	.	1	.	+	+	40
	Knautia maxima	.	.	.	1	2a	.	.	.	.	.	20
aa,Fs	*Milium effusum*	.	.	.	.	.	+	1	.	.	.	20
Pc	*Geranium phaeum*	.	.	.	.	.	+	.	1	.	.	20
	Primula elatior	.	.	.	.	.	+	.	.	.	+	20
Cv	*Achillea *alpestris*	.	.	.	.	.	.	.	+	.	+	20
Cv	*Campanula serrata*	.	.	.	.	.	.	.	.	1	+	20
Cv	*Pleurospermum austriacum*	+	.	.	.	.	.	.	.	.	.	10
Pc	*Petasites hybridus*	.	.	2b	.	.	.	.	.	.	.	10
	Acetosa arifolia	.	.	.	.	.	.	2a	.	.	.	10
Cv	*Crepis conyzifolia*	.	.	.	.	.	.	2a	.	.	.	10
Cv	*Pyrethrum clusii*	.	.	.	.	.	.	+	.	.	.	10
Cv	*Vicia oreophila*	.	.	.	.	.	.	+	.	.	.	10
Cv	*Laserpitium latifolium*	.	.	.	.	.	.	.	+	.	.	10
Cv	*Bupleurum *vapincense*	.	.	.	.	.	.	.	.	.	1	10
Cv	*Campanula elliptica*	.	.	.	.	.	.	.	.	.	+	10
Cv	*Crepis mollis*	.	.	.	.	.	.	.	.	.	+	10
Cv	*Cyanus mollis*	.	.	.	.	.	.	.	.	.	+	10
fc	*Festuca carpatica*	.	.	.	.	.	.	.	.	.	+	10
Cv	*Hieracium prenanthoides*	.	.	.	.	.	.	.	.	.	+	10
Cv	*Linum extraaxillare*	.	.	.	.	.	.	.	.	.	+	10
Cv	*Phleum hirsutum*	.	.	.	.	.	.	.	.	.	+	10
Cv	*Pimpinella *rhodochlamys*	.	.	.	.	.	.	.	.	.	+	10
	Poa chaixii	.	.	.	.	.	.	.	.	.	+	10
Querco-Fagetea													
Fs	*Dryopteris filix-mas*	.	.	+	+	+	2a	.	+	.	.	50
QF	*Poa nemoralis*	1	.	.	.	.	.	2b	2b	2a	.	40
Fs	*Myosotis sylvatica*	.	+	1	.	+	.	.	.	.	+	40
ai	*Oxalis acetosella*	.	+	.	+	2m	+	.	.	.	.	40
ai	*Lamium maculatum*	.	.	2b	2a	.	.	.	1	.	+	40
Fs,EA	*Epilobium montanum*	.	.	.	.	+	+	+	+	.	.	40
Fs	*Cardamine impatiens*	+	.	+	.	.	.	.	1	.	.	30
Fs	*Lathyrus vernus*	+	.	.	.	.	.	.	1	1	.	30
Fs	*Pulmonaria obscura*	.	.	1	.	.	+	.	1	.	.	30
ai	*Angelica sylvestris*	.	.	+	+	.	.	.	+	.	.	30
Fs	*Daphne mezereum*	.	.	.	r	.	r	.	.	+	.	30
fs	*Hordelymus europaeus*	1	+	.	.	.	.	.	.	.	.	20
Fs	*Campanula trachelium*	.	.	.	+	+	.	.	.	.	.	20
ac	*Scrophularia scopolii*	.	.	.	.	.	+	.	.	.	1	20
Fs	*Mercurialis perennis*	.	.	.	.	.	+	1	.	.	.	20
Fs	*Melica nutans*	.	.	.	.	.	.	+	1	.	.	20
Fs	*Tithymalus amygdaloides*	.	.	.	.	.	.	.	.	1	+	20
Other taxa													
	Viola biflora	+	+	+	+	+	1	.	.	2m	.	70
	Arabis alpina	+	+	.	1	2a	.	.	.	2b	2a	60
	Hypericum maculatum	+	.	.	.	+	1	.	.	2a	+	50
	Cystopteris montana	+	+	.	.	.	.	1	.	.	+	40
	Digitalis grandiflora	+	.	.	.	r	.	.	+	.	2a	40
	Rubus idaeus	.	.	+	1	+	1	.	.	.	.	40
	Veronica chamaedrys	+	.	.	.	+	.	+	.	.	.	30

Dactylis glomerata	.	.	.	r	.	+	.	.	.	2a	30
Dactylorhiza fuchsii	r	r	.	.	.	.	.	.	.	.	20
Picea abies	+	.	.	.	r	.	.	.	.	.	20
Ajuga reptans	.	.	2b	+	.	.	.	.	.	.	20
Poa trivialis	.	.	+	.	+	.	.	.	.	.	20
Sorbus aucuparia	.	.	.	.	.	r	r	.	.	.	20
Asplenium viride	.	.	.	.	.	+	.	.	+	.	20
Cardaminopsis arenosa agg.	.	.	.	.	.	.	+	2b	.	.	20
Galium anisophyllon	.	.	.	.	.	.	+	.	1	.	20
Origanum vulgare	.	.	.	.	.	.	.	1	.	+	20
Galium album	.	.	.	.	.	.	.	+	.	2a	20
Vicia sepium	.	.	.	.	.	.	.	+	.	+	20
Avenella flexuosa	.	.	.	.	.	.	.	.	+	+	20
Thesium alpinum	.	.	.	.	.	.	.	.	+	r	20

Taxa occuring in 1–2 relevés:

E_1: *Aconitum vulparia* 2b (9); *Adoxa moschatellina* r (6); *Aegopodium podagraria* + (3), 1 (8); *Ajuga genevensis* + (1); *Alchemilla* sp. + (10); *Alliaria petiolata* + (8); *Allium *montanum* + (10); *Anthoxanthum alpinum* + (10); *Anthriscus* sp. + (1); *Anthyllis *alpestris* 1 (9); *Aruncus vulgaris* r (4), + (7); *Asarum europaeum* + (10); *Asplenium ruta-muraria* + (9); *A. trichomanes* + (9); *Botrychium lunaria* r (7); *Cardamine amara* + (5); *Cardaminopsis halleri* + (6); *Carex *tatrorum* + (9); *C. sylvatica* + (3); *Carlina acaulis* + (9); *Chaerophyllum aromaticum* + (4); *Chamerion angustifolium* + (3); *Chelidonium majus* + (8); *Cimicifuga europaea* + (7); *Cirsium oleraceum* 1 (3); *Clematis alpina* + (6); *Deschampsia cespitosa* + (5); *Equisetum arvense* + (5); *Fagus sylvatica* r (2); *Festuca gigantea* + (5); *Festuca tatrae* 1 (9); *Galeopsis speciosa* + (10); *G. tetrahit* + (5); *Galeopsis* sp. r (6); *Glechoma hederacea* + (4), 1 (7); *Gymnadenia conopsea* r (9); *Gymnocarpium dryopteris* + (6); *G. robertianum* 1 (9); *Hieracium murorum* + (9); *Homogyne alpina* + (10); *Hylotelephium argutum* 1 (6); *H. maximum* + (8); *Hypericum hirsutum* + (7); *Jovibarba globifera* 1 (9); *Knautia arvensis* + (10); *Lapsana communis* + (8); *Lathyrus pratensis* + (10); *Leucanthemum margaritae* + (10); *Lilium martagon* r (10); *Linum catharticum* + (9); *Lonicera xylosteum* r (6); *Lotus corniculatus* + (9); *Lunaria rediviva* + (2), 1 (8); *Melampyrum sylvaticum* + (6); *Mycelis muralis* + (4, 9); *Paris quadrifolia* + (2); *Phyteuma spicatum* r (6); *Poa alpina* + (9); *P. stiriaca* + (2); *Polemonium caeruleum* + (4); *Polygala *brachyptera* + (9); *Polypodium vulgare* + (6); *Polystichum lonchitis* + (9); *Prenanthes purpurea* + (7); *Ranunculus alpestris* + (9); *R. breyninus* 1 (7); *R. lanuginosus* + (2, 8); *R. polyanthemos* + (9); *Rhinanthus* sp. r (7); *Rubus caesius* + (8); *R. saxatilis* + (7); *Salix caprea* r (7); *S. silesiaca* 1 (1); *Salvia glutinosa* + (3); *Sanicula europaea* + (4); *Saxifraga paniculata* 1 (9); *Scabiosa lucida* + (9); *Scrophularia nodosa* + (3); *Sesleria albicans* + (9); *Silene vulgaris* 2a (10); *Soldanella hungarica* r (6); *Stachys alpina* 2a (10); *Taraxacum* sp. + (2); *Thlaspi *tatrense* r (6); *Thymus pulcherrimus* 1 (9); *Tragopogon orientalis* r (10); *Trisetum flavescens* 1 (10); *Tussilago farfara* + (1); *Valeriana tripteris* + (6); *Veronica* sp. + (8); *Vicia cracca* + (10); *Viola tricolor* r (6).

E_0: *Brachythecium rutabulum* 4, *Plagiomnium affine* +.

Tab. 6. Comparison of the floristic composition of the higher syntaxa of the class *Mulgedio-Aconitetea.*
(abbreviated synoptic table)

Number of column		1	2	3	4	5	6a	6b	7
Number of relevés		210	147	148	63	97	117	81	353
Average number of taxa		24	26	41	43	40	21	34	29
Calamagrostion villosae									
Calamagrostis villosa	C1	**99**^{8}	39^{3}	34^{8}	.	12^{4}	72^{3}	20^{3}	+^{2}
*Carex *silicicola*	t1	**47**^{3}	24^{2}	.	.	.	3^{2}	.	.
Hieracium alpinum agg.	C1	**33**^{2}	5^{2}	.	.	5^{2}	3^{2}	.	.
Avenula versicolor	C1	**28**^{2}	7^{2}	.	2^{2}	3^{2}	1^{2}	.	.
*Sempervivum *carpathicum*	C1	**22**^{2}	4^{2}	.	.	1^{2}	3^{2}	.	.
Pulsatilla scherfelii	D1	**30**^{3}	8^{2}	.	.	.	1^{2}	.	.
Trisetion fusci									
Trisetum fuscum	C2	3^{2}	**31**^{4}	.	.	11^{3}	11^{2}	5^{3}	.
Rhodiola rosea	C2	13^{2}	**60**^{4}	1^{2}	2^{2}	31^{3}	23^{2}	28^{3}	+^{2}
Taraxacum alpinum	C2	2^{2}	**41**^{2}	.	.	.	8^{2}	.	.
Carex aterrima	C2	3^{2}	**27**^{2}	.	.	2^{2}	2^{2}	.	.
Cerastium fontanum	C2	1^{2}	**21**^{2}	.	2^{2}	5^{2}	.	.	.
Cardaminopsis neglecta	C2	.	**14**^{2}	.	.	.	1^{2}	.	.
*Caltha *laeta*	D2	+^{2}	**44**^{3}	.	.	.	3^{3}	11^{4}	34^{2}
Cardamine amara s. l.	D2	.	**13**^{2}	.	.	.	.	.	17^{2}
Bryum pseudotriquetrum (E_0)	C2	.	**20**^{2}	.	.	.	.	.	1^{3}
Calamagrostion arundinaceae									
Calamagrostis arundinacea	C3	4^{2}	1^{5}	**87**^{6}	16^{3}	22^{2}	3^{2}	16^{3}	3^{2}
Knautia maxima	t3	+^{2}	.	**59**^{3}	24^{2}	12^{3}	1^{1}	4^{3}	1^{2}
Vicia oreophila	t3	.	.	**41**^{2}	24^{2}	5^{2}	.	2^{2}	.
Hieracium prenanthoides	C3	2^{2}	.	**39**^{3}	14^{3}	6^{2}	.	4^{4}	.
Allium victorialis	C3	.	.	**32**^{3}	8^{1}	1^{2}	.	.	.
*Dianthus *latifolius*	C3	.	.	**30**^{2}	17^{2}	3^{2}	.	.	.
Vicia sylvatica	C3	.	.	**27**^{4}	13^{3}	4^{2}	.	2^{3}	1^{3}
Jacea pseudophrygia	C3	.	.	**22**^{4}	11^{2}	1^{3}	.	.	.
Agrostis capillaris	D3	.	7^{2}	**55**^{4}	11^{3}	3^{2}	.	1^{2}	1^{2}
Cruciata glabra	D3	.	1^{2}	**47**^{2}	13^{2}	3^{3}	.	1^{2}	6^{2}
Briza media	D3	.	1^{1}	**32**^{2}	17^{2}	1^{2}	.	.	1^{2}
Avenula planiculmis	D3	.	.	**24**^{4}	2^{2}	1^{2}	.	.	.
Calamagrostion variae									
Calamagrostis varia	C4	.	.	2^{2}	**99**^{8}	23^{4}	.	9^{4}	3^{2}
Knautia kitaibelii	C4	.	1^{2}	2^{2}	**33**^{2}	6^{3}	.	.	.
Epipactis atrorubens	C4	.	.	.	**21**^{1}	.	.	.	.
Gymnadenia odoratissima	C4	.	.	.	**14**^{1}	1^{2}	.	.	.
Carduus glaucinus	D4	.	.	1^{2}	**51**^{3}	14^{2}	.	.	.
Mercurialis perennis	D4	.	.	13^{2}	**51**^{2}	8^{3}	.	10^{4}	5^{2}
Acinos alpinus	D4	.	.	.	**17**^{2}	.	.	.	.
Festucion carpaticae									
Festuca carpatica	C5	.	.	7^{3}	10^{3}	**99**^{8}	1^{2}	26^{3}	.

Bartsia alpina	C5	7^{2}	3^{2}	1^{2}	.	**33^{2}**	.	.	.
Sesleria tatrae	D5	2^{2}	.	7^{3}	6^{3}	**56^{3}**	.	7^{2}	.
Luzula sylvatica	D5,D6b	7^{3}	3^{2}	13^{2}	8^{2}	**48^{3}**	7^{3}	**51^{3}**	5^{2}
Cortusa matthioli	D5,D6b	.	.	1^{2}	13^{3}	**42^{3}**	.	**25^{3}**	9^{2}
Calamagrostietalia villosae									
Luzula luzuloides		**59^{3}**	**12^{2}**	**86^{3}**	**6^{3}**	**51^{3}**	6^{2}	21^{3}	3^{2}
Solidago virgaurea	t	**59^{2}**	**18^{2}**	**43^{2}**	**22^{2}**	**12^{3}**	26^{2}	9^{2}	1^{2}
Campanula serrata		**9^{2}**	**2^{2}**	**71^{2}**	**24^{2}**	**28^{2}**	4^{1}	16^{2}	1^{2}
*Achillea *alpestris*		**8^{2}**	**7^{2}**	**67^{3}**	**22^{3}**	**46^{3}**	1^{2}	11^{2}	.
Anemone narcissiflora		**3^{2}**	**3^{3}**	**43^{3}**	**13^{3}**	**31^{3}**	3^{2}	1^{3}	.
Crepis conyzifolia		**25^{3}**	**7^{2}**	**36^{3}**	**6^{2}**	**7^{2}**	4^{2}	2^{4}	.
Festuca picturata		**70^{4}**	**63^{3}**	**.**	**.**	**15^{3}**	62^{3}	2^{2}	+
Gentiana punctata	D6a	**57^{3}**	**30^{2}**	**.**	**.**	**1^{2}**	**70^{3}**	2^{2}	.
Trommsdorfia uniflora		**27^{2}**	**1^{2}**	**11^{2}**	**.**	**1^{3}**	1^{1}	.	.
Campanula tatrae		**37^{2}**	**20^{2}**	**1^{2}**	**5^{2}**	**15^{2}**	.	1^{2}	.
Crepis mollis		**$+^{2}$**	**.**	**48^{2}**	**19^{2}**	**48^{3}**	.	12^{2}	1^{3}
Linum extraaxillare		**$+^{4}$**	**.**	**39^{3}**	**17^{3}**	**38^{3}**	.	5^{2}	.
Cirsium erisithales		**.**	**.**	**53^{3}**	**70^{2}**	**34^{3}**	.	20^{3}	3^{2}
Cyanus mollis		**.**	**.**	**27^{4}**	**37^{2}**	**18^{3}**	.	9^{3}	+
Laserpitium latifolium		**.**	**.**	**33^{4}**	**86^{4}**	**14^{2}**	.	4^{2}	+
Pimpinella major		**.**	**.**	**60^{3}**	**65^{3}**	**52^{4}**	.	19^{3}	1^{2}
Pleurospermum austriacum		**.**	**.**	**11^{2}**	**16^{2}**	**4^{3}**	.	6^{2}	+
Bupleurum longifolium		**.**	**.**	**14^{3}**	**6^{3}**	**15^{3}**	.	2^{3}	.
Campanula elliptica		**.**	**.**	**50^{3}**	**27^{2}**	**32^{2}**	.	5^{2}	.
Phleum hirsutum		**.**	**.**	**49^{3}**	**24^{3}**	**39^{3}**	.	2^{3}	.
Pyrethrum clusii		**.**	**.**	**66^{3}**	**46^{2}**	**13^{2}**	.	1^{2}	.
Adenostylion alliariae									
Adenostyles alliariae	C6a,b	25^{2}	25^{3}	9^{3}	3^{2}	22^{3}	**94^{7}**	**79^{7}**	3^{2}
Ranunculus platanifolius	t6a,b	20^{2}	10^{3}	19^{2}	6^{3}	7^{3}	**53^{3}**	**23^{3}**	3^{2}
Doronicum austriacum	C6a,b	10^{2}	14^{2}	2^{2}	.	3^{2}	**53^{4}**	**49^{3}**	6^{3}
Milium effusum	t6a,b	9^{2}	12^{3}	3^{2}	.	10^{2}	**51^{3}**	**42^{4}**	15^{2}
Silene dioica	t6a,b	7^{2}	9^{3}	5^{2}	.	26^{2}	**41^{3}**	**52^{2}**	32^{2}
Athyrium distentifolium	C6a,b	9^{2}	14^{2}	1^{2}	2^{2}	.	**44^{6}**	**25^{3}**	4^{2}
Cicerbita alpina	C6a,b	1^{3}	2^{3}	3^{2}	.	2^{2}	**37^{4}**	**37^{4}**	2^{2}
Adenostylenion alliariae									
Luzula alpinopilosa	D6a	29^{3}	51^{2}	.	.	.	**61^{3}**	7^{3}	.
Oreogeum montanum	D6a	80^{3}	68^{3}	.	.	18^{2}	**73^{3}**	6^{2}	1^{2}
Delphinenion elati									
Delphinium elatum	C6b	.	.	6^{3}	8^{3}	7^{3}	.	**30^{5}**	5^{3}
Epilobium alpestre	D6b	.	1^{3}	6^{2}	2^{2}	23^{2}	2^{2}	**46^{3}**	5^{2}
Petasition officinalis									
Chaerophyllum hirsutum	D6b,C7	1^{3}	31^{4}	6^{3}	8^{3}	6^{3}	6^{2}	**78^{5}**	**87^{4}**
Stellaria nemorum	D6b,C7	.	29^{4}	5^{2}	.	5^{2}	9^{2}	**53^{4}**	**83^{4}**
Petasites hybridus	C7	.	.	.	2^{3}	.	.	14^{5}	**70^{8}**
Petasites kablikianus	C7	.	.	.	.	.	1^{3}	11^{6}	**32^{8}**
Chrysosplenium alternifolium	C7	$+^{2}$	20^{3}	1^{2}	.	2^{2}	2^{3}	38^{3}	**47^{4}**
Carduus personata	C7	.	2^{3}	8^{2}	2^{2}	8^{3}	1^{2}	37^{2}	**51^{3}**
Geranium phaeum	C7	.	.	1^{2}	2^{2}	1^{3}	.	4^{2}	**51^{3}**
Orobanche flava	C7	.	.	.	.	.	.	4^{2}	**23^{2}**

Anthriscus nitida	C7	.	.	.	.	1^{3}	.	1^{2}	**16^{3}**
Impatiens noli-tangere	D7	.	.	.	.	.	.	4^{2}	**54^{3}**
Mentha longifolia	D7	.	.	.	.	.	.	.	**47^{3}**
Chaerophyllum aromaticum	D7	.	.	1^{2}	2^{1}	6^{3}	.	2^{3}	**46^{3}**
Poa trivialis	D7	.	.	.	.	.	.	4^{2}	**46^{3}**
Ranunculus repens	D7	.	1^{2}	1^{3}	.	.	.	1^{5}	**45^{2}**
Aegopodium podagraria	D7	.	.	5^{2}	2^{2}	.	.	4^{2}	**39^{3}**
Lamium maculatum	D7	.	.	1^{2}	2^{2}	1^{3}	.	6^{4}	**37^{3}**
Filipendula ulmaria	D7	.	1^{2}	2^{3}	2^{2}	3^{3}	.	11^{3}	**35^{2}**
Mulgedio-Aconitetea									
Acetosa arifolia		29^{3}	30^{3}	40^{3}	2^{3}	37^{2}	83^{4}	70^{4}	18^{2}
Aconitum firmum	D2	14^{2}	**76^{4}**	2^{2}	6^{3}	32^{3}	40^{3}	47^{4}	11^{3}
Gentiana asclepiadea		23^{2}	7^{3}	38^{2}	19^{2}	29^{2}	12^{3}	42^{2}	6^{2}
Geranium sylvaticum		20^{2}	36^{4}	61^{3}	25^{2}	84^{4}	30^{3}	77^{3}	15^{2}
Poa chaixii		22^{2}	5^{2}	16^{2}	3^{2}	25^{2}	11^{3}	25^{3}	3^{2}
Primula elatior		2^{2}	10^{2}	25^{2}	21^{2}	70^{3}	12^{3}	57^{3}	38^{2}
Senecio subalpinus		7^{3}	31^{3}	22^{2}	3^{2}	47^{3}	15^{3}	47^{2}	5^{2}
Thalictrum aquilegiifolium		3^{2}	8^{3}	3^{2}	8^{2}	21^{3}	7^{2}	40^{2}	19^{2}
*Valeriana *sambucifolia*		1^{2}	1^{3}	4^{2}	8^{2}	16^{3}	1^{2}	40^{3}	29^{2}
*Veratrum *lobelianum*		61^{3}	31^{2}	12^{2}	3^{2}	31^{3}	86^{3}	48^{3}	3^{2}
Bistorta major		40^{3}	55^{3}	4^{3}	.	52^{3}	42^{3}	38^{3}	$+^{2}$
Astrantia major		.	.	28^{2}	33^{2}	32^{2}	1^{3}	21^{2}	11^{2}
Aconitum variegatum		.	.	9^{3}	19^{3}	4^{4}	.	14^{3}	14^{2}

+ occurence with frequency lower than 0,5%