SYNTAXONOMIC PROBLEMS OF ALTIMONTANE BEECH FORESTS OF THE ALLIANCE AREMONIO-FAGION IN SLOVENIA

SINTAKSONOMSKI PROBLEMI ALTIMONTANSKIH BUKOVIH GOZDOV ZVEZE AREMONIO-FAGION V SLOVENIJI

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ABSTRACT UDC 630*176.322(497.4): 581.55

Syntaxonomic problems of altimontane beech forests of the alliance *Aremonio-Fagion* in Slovenia

The aim of the paper is to determine the syntaxonomic position of altimontane beech forests of Slovenia on the basis of a phytocenological synthesis table. At the same time, we are publishing analytical table for the associations *Stellario montanae-Fagetum* (= *Aceri-Fagetum dinaricum*), *Aconito paniculati-Fagetum* (= *Aceri-Fagetum austroalpinum*) and *Cardamine waldsteinii-Fagetum* var. *Abies alba* (= *Aceri-Fagetum pohoricum*). The valid synthesis table for these associations was published in 1969 (Zupančič 1969). New sub-associations *Stellario-Fagetum adenostyletosum alliariae, Stellario-Fagetum typicum, Aconito paniculati-Fagetum typicum* and *Aconito paniculati-Fagetum sorbetosum chamaemespilus* are described.

Key words: phytocenology, altimontane beech forests, Slovenia.

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Sintaksonomski problemi altimontanskih bukovih gozdov zveze *Aremonio-Fagion* v Sloveniji

V razpravi želimo na podlagi sintezne fitocenološke tabele opredeliti sintaksonomski položaj altimontanskih bukovih gozdov Slovenije. Hkrati objavljamo analitično tabelo z asociacijami *Stellario montanae-Fagetum* (= *Aceri-Fagetum dinaricum*), *Aconito paniculati-Fagetum* (= *Aceri-Fagetum austroalpinum*) in *Cardamine waldsteinii-Fagetum* var. *Abies alba* (= *Aceri-Fagetum pohoricum*). Za te asociacije je bila veljavna sintezna tabela, objavljena leta 1969 (Zupančič 1969). Opisane so nove subasociacije *Stellario-Fagetum adenostyletosum alliariae, Stellario-Fagetum typicum* ter *Aconito paniculati-Fagetum typicum* in *Aconito paniculati-Fagetum sorbetosum chamaemespilus.*

Ključne besede: fitocenologija, altimontanski bukovi gozdovi, Slovenija.

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1 INTRODUCTION

This contribution is a response to the paper by Marinček & Čarni (2010), with parts of which we cannot agree, in particular with the syntaxonomic assessment of the association *Stellario montanae-Fagetum*, with the presentation of *Aconito paniculati-Fagetum* and with the syntaxonomic position of the associations *Ranunculo platanifolii-Fagetum* and *Polysticho lonchitis-Fagetum*. In order to clarify the problems, we have produced analytical tables of the associations *Stellario montanae-Fagetum* (= *Aceri-Fagetum dinaricum*), *Aconito paniculati-Fagetum* (= *Aceri-Fagetum austroalpinum*) and *Cardamine waldsteinii-Fagetum* var. *Abies alba* (= *Aceri-Fagetum pohoricum),* and a synthesis table that embraces the aforementioned three associations, the association *Ranunculo platanifolii-Fagetum* with geographic variants *Calamintha grandiflora*, *Isopyrum thalictroides* and *typica*, the association *Polysticho lonchitis-Fagetum* with geographic variants *Allium victorialis* and *Salix waldsteiniana* (Marinček & Čarni 2010), the association *Rhododendro-Fagetum* (Dakskobler 1998) and the association or geographic variant *Anemono trifoliae-Fagetum* var. geogr. *Helleborus niger* (Marinček, Poldini & Zupančič 1989). The synthesis table has 19 columns, respecting individual sub-associations within the association *Ranunculo platanifolii-Fagetum*, as published by the authors Marinček & Čarni (2010), and sub-associations in the association *Anemono trifoliae-Fagetum,* as published in the paper by Marinček, Poldini & Zupančič (1989). We will not discuss ecological conditions, the construction of associations, their floristic composition or syntaxonomic classification into higher ranks, which the authors have already described in their papers. In some cases, we will critically discuss characteristic and distinguishing species of associations, namely comparatively and, consequently, in some cases in relation to floristic composition.

2 METHOD OF WORK

The phytocenological research is based on the standard Central European method (Braun-Blanquet 1964, Westhoff & Van Der Maarel 1973) respecting the phytocenological codex (Weber, Moravec & Theurillat 2000). The taxonomic nomenclature of flora is harmonised according to Mala flora Slovenije (Martinčič et al. 2007).

3 ASSOCIATION *STELLARIO MONTANAE-FAGETUM*

The association was first described in 1967 as *Aceri-Fagetum dinaricum* Wraber 1960 (n. nud.) (Zupančič 1967) and a separate added synthesis table for comparison between the Dinarid geographic variant and the Central-European association *Aceri-Fagetum* J. & M. Bartsch 1940. The geographic variant *Aceri-Fagetum dinaricum* was again published in a comparative study of maple-beech forests in 1969 in a synthesis table (Zupančič 1969). In view of the new Codex of Phytocenological Nomenclature (Barkman et al. 1976) in 1993, we renamed the geographic variant *Aceri-Fagetum dinaricum* as the association *Stellario glochidispermae-Fagetum* (Zupančič 1969) Marinček et al. 1993 (Marinček et al. 1993). Subsequently, Dakskobler et al. (1999) performed a revision of the aggregate *Stellaria nemorum* L. in Slovenia and established that the species *Stellaria glochidisperma* (Murb.) Freyn is classified or included in the species *Stellaria montana* Pierrat, so we had validly named the association *Stellario montanae-Fagetum* (Zupančič 1969) Marinček et al. 1992 nom. nov. The association *Stellario montanae-Fagetum* was properly (validly) published in 1969 according to the Codex of Phytocenological Nomenclature, with 16 relevés in the synthesis table (article 1) and then corrected in relation to the name according to floristic principles (article 34) (Weber et al. 2000).

In the paper on altimontane beech forests of the Illyrian alliance *Aremonio-Fagion* Marinček & Čarni (2010: 23–24) they briefly state the following: "We did not place the syntaxon *Stellario glochidispermae-Fagetum* (Zupančič 1969) Marinček et al. 1993 in the suballiance *Saxifrago-Fagenion*. Phytocenological investigation showed that the taxon has only the value of a subassociation. It is recorded in both the Pre-Alpine geographic variants of the association *Ranunculo platanifolii-Fagetum* (*Ranunculo platanifolii-Fagetum* var. geogr. *typica stellarietosum*) and in a Dinaric geographic variant (*Ranunculo platanifolii-Fagetum* var. geogr. *Cala-*

mintha grandiflora stellarietosum)." Because of these claims, we are publishing an analytical table of the association *Stellario montanae-Fagetum*, in which it is evident that 13 phytocenological relevés from the area of Trnovski gozd and one each relevé from Kočevje, Idrija and Blegoš, which is located in the Pre-Alpine phytocenological region but has a specific position. This is found by Marinček & P. Košir (1998), when they describe Dinaric beech forests *Omphalodo-Fagetum* (Tregubov 1957) Marinček et al. 1992 *ranunculetosum platanifolii* Marinček & P. Košir 1998 on Blegoš, which in their opinion has an "intrazonal distribution". It is a disjunct Dinaric association. It is similar with the phytocenological relevés of the association *Stellario montanae-Fagetum* on Blegoš. So the claim that the syntaxon *Stellario montanae-Fagetum* is recorded in Dinaric and Pre-Alpine geographic variants is inexact.

The claim that the syntaxon *Stellario montanae-Fagetum* is only a subassociation of the syntaxon *Ranunculo platanifolii-Fagetum* s. lat. is not acceptable, since the authors should have respected the time precedence of more than forty years of the previously published syntaxon *Stellario montanae-Fagetum* and included the syntaxon *Ranunoculo platanifolii-Fagetum* in the first published syntaxon *Stellario montanae-Fagetum* and not the reverse, as they did.

According to Sørensen, there is great similarity between the phytocenoses *Stellario montanae-Fagetum* and *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* (σs = 86.8), the coefficient according to Jaccard is lower (σj = 50.3). Sørensen's coefficient leads us to the conviction that it is a single phytocenosis with the precedential name *Stellario montanae-Fagetum*, and the synthesis table shows the floristic and ecological particularities between them. The association *Stellario montanae-Fagetum* has clearly expressed diagnostic species, such as the characteristic species *Stellaria montana*, *Polystichum aculeatum* and *Cardamine pentaphyllos* and distinguishing species *Acer pseudoplatanus*, *Scrophularia nodosa* and *Corydalis cava*. The characteristic and especially the distinguishing species indicate a damper habitat and they are numerous or only represented (*Cardamine pentaphyllos*) in the association *Stellario montanae-Fagetum*. They are only present here and there in the geographic variant *Ranunculo platanifolii-Fagetum*, as is evident from the synthesis table. More often there is only maple – *Acer pseudoplatanus*, which has a low median level of presence and still smaller median cover value. In the association *Stellario montanae-Fagetum* for the most part there are no characteristic or distinguishing species of the association *Ranunculo platanifolii-Fagetum* or only four of eight appear, with low presence or low cover values (*Luzula sylvatica* 32 II, *Ranunculus platanifolius* 3 II, *Aremonia agrimonioides* 4 III, *Veratrum album* subsp. *album* 2 II). It must be noted here that the characteristic and distinguishing species of the association *Ranunculo platanifolii-Fagetum* s. lat. are relative and appear more or less in all altimontane and subalpine beech associations of the Illyrian alliance *Aremonio-Fagion*. The association *Stellario montanae-Fagetum* cannot be classified either in the Dinaric geographic *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* or in the Pre-Alpine geographic variant *Ranunculo platanifolii-Fagetum* var. geogr. *typica*, since the distinguishing species of the two geographic variants are not present in it. It must be noted that the association *Stellario montanae-Fagetum* is in general poor in characteristic and distinguishing species of the Illyrian alliance of beech forests *Aremonio-Fagion,* especially in comparison with the geographic variant *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora*. Further analyses will show a considerably lower coefficient of similarity between the phytocenoses *Stellario montanae-Fagetum* and *Ranunculo platanifolii-Fagetum* s. lat.

The characteristic species *Stellaria montana* of the association *Stellario montanae-Fagetum* appears more numerously in the phytocenosis of Ž. Košir *Isopyro-Fagetum* var. *Adenostyles alliariae*, which Marinček included in the geographic variant *Ranunculo platanifolii--Fagetum* var. geogr. *Isopyrum thalictroides,* specifically in the subassociation *stellarietosum nemorosae*. In addition to the species *Stellaria montana,* the distinguishing species *Corydalis cava* is also present in the geographic variant *Ranunculo-Fagetum* var. geogr. *Isopyrum thalictroides*. Other diagnostic species for the association *Stellario montanae-Fagetum* are not in the geographic variant *Ranunculo platanifolii-Fagetum* var. geogr. *Isopyrum thalictroides*. Only the very rare individual appearance of sycamore maple must be mentioned, which essentially distinguishes the phytocenosis. The indexes of similarity are Sørensen σs = 59.4 and Jaccard σj = 42.3, which means different phytocenoses.

If in the first phase we accept the thesis of Marinček & Čarni (2010: 19) that the association *Isopyro-Fagetum* is only a geographic variant of the association *Ranunculo platinifolii-Fagetum* with the species *Isopyrum thalictroides,* this, together with the species *Crocus vernus,* would be a distinguishing species for the geographic variant *Ranunculo platinifolii-Fagetum* var. geogr. *Isopyrum thalictroides.* Comparison of this with the association *Stellario montanae-Fagetum* indicates difference but also slight relatedness (σs = 58, σj = 40.8), and difference with the association *Aconito paniculati--Fagetum* (σs = 48.0, σs = 31.5).

We also compared the association *Stellario montanae-Fagetum* with three phytocenoses; specifically with the geographic variant *Polysticho lonchitis-Fagetum* var. geogr. *Allium victorialis,* in which σs = 59.5 and σj = 42.4, and *Rhododendro hirsuti-Fagetum* var. geogr. *Anemone trifolia* subvar. geogr. *Omphalodes verna*, in which σs = 34.5 and σj = 22.0, and with the combined associations *Ranunculo platanifolii-Fagetum* s. lat. and *Polysticho lonchitis-Fagetum* s. lat., in which σs = 58.9 or σs = 47.7. All coefficients of similarity confirm the difference or independence of the cited phytocenoses.

More detailed research into the association *Stellario montanae-Fagetum* have shown that the association is articulated into two subassociations.

Subassociation *Stellario montanae-Fagetum typicum* subass. nova is generally widespread on limestone or dolomite, thus carbonate brown soils on colluvial deposits, in which the A horizon is deep, less skeletal. **The holotype of the subassociation is relevé number 8 from the Analytical Table.**

Subassociation *Stellario montanae-Fagetum adenostyletosum alliariae* subass. nova thrives on fresher habitats than the previous one. The distinguishing species are: *Doronicum austriacum*, *Adoxa moschatelina*, *Adenostyles alliariae*, *Cicerbita alpina* and *Myosotis sylvatica*. Except for the species *Adoxa moschatelina* all the others are from the order *Adenostyletalia* s. lat. The beech-associated species *Adoxa moschatelina* mainly grows on fresh to moist soil. The leaching of sesquioxides can be observed in smaller quantities in the soils, which causes less acidification of the soil and here and there indicates a slightly greater presence of acidophilous species. **The holotype of the subassociation is relevé number 15 in the Analytical Table.**

4 ASSOCIATION *ACONITO PANICULATI-FAGETUM*

The first presentation of the association *Aconito paniculati-Fagetum* was in 1969 under the name *Aceri-Fagetum austroalpinum* (Zupančič 1969). In 1993 we renamed it according to the Codex of Phytocenological Nomenclature into *Aconito paniculati-Fagetum* (Marinček et al. 1993). In a paper from 1969 the cited association was presented in a synthesis table with eight phytocenological relevés and a short ecological composition (Zupančič 1969: 120–121). In renaming the association *Aceri-Fagetum austroalpinum* into the valid name *Aconito paniculati-Fagetum* we used for the nomenclature type the phytocenological relevé of M. Wraber (Marinček et al. 1993: 129–130).

The claim by Marinček & Čarni (2010: 27) that "The syntaxon was established on the basis of one relevé, which was done in 1960" is inexact or is even misleading, or that "More precise synsystematic classification will be possible when an analytical table is published with at least five relevés". This comment is even more odd given that the authors cite in the Literature Zupančič's paper from 1969 (Marinček & Čarni 2010: 39).

The characteristic and distinguishing species of the association *Aconito paniculati-Fagetum* in the group of altimontane beech forests of Slovenia of the Illyrian alliance *Aremonio-Fagion* appear only in it. The characteristic species are: *Aconitum lycoctonum* subsp. *ranunculifolium*, *Aconitum degenii* subsp. *paniculatum*, *Crepis paludosa*, *Geranium sylvaticum*, *Salix appendiculata*, *Rumex alpestris* and *Senecio cacaliaster*. All are taken from the order *Adenstyletalia* s. lat. and show exemplarily the fresh habitat of the association. The distinguishing species are *Acer pseudoplatanus,* with the highest median cover value among altimontane beech associations, *Myrrhis odorata* and *Geum rivale*. All the aforementioned diagnostic species for the association are present with the highest level of presence and for the most part also with the highest median cover values. All confirm the freshness and high mountain nature of the association *Aconito paniculati-Fagetum*.

Phytocenological inventories were taken in Triglav National Park in the Julian Alps at altitudes from 1260–1500 m, thus for the most part above the zone of the association *Anemono trifoliae-Fagetum* s. lat., on limestone and dolomite on which carbonate brown soils have developed, occasionally rendzinas. The habitats of the association are damper than in the case of the association *Stellario montanae-Fagetum*, which is reflected in the higher representation of species of the order *Adenostyletalia* s. lat.

We have described two subassociations within the framework of the association, namely ***Aconito paniculati-Fagetum typicum* subass. nova**, which grows on warmer, southern less steep slopes on fresh, biologically more active soil. **The holotype of the subassociation is relevé number 18 from the Analytical Table.**

The second subassociation, ***Aconito paniculati-Fagetum sorbetosum chamaemespilus* subass. nova,** is an

upland, colder phytocenosis on fresher to damper and also slightly acidic soils, as is confirmed by the distinguishing species of the subassociation and the numerous spruce-associated species. The distinguishing species are: *Viola biflora*, *Polystichum lonchitis*, *Sorbus chamaemespilus* and *Ribes alpinum*. The enumerated species are representatives of the subalpine zone. **The holotype of the subassociation is relevé number 22 from the Analytical Table.**

Because of linkage, we also studied the relation between similar or vegetatively close phytocenoses. The bulk of the flora of altimontane beech associations is fairly homogenous, from species of the class *Querco-Fagetea* s. lat. or beech-associated flora and high stemmed species – *Adenostylatelia* s. lat. The association *Stellario-Fagetum* is most closely related to the association *Aconito paniculati-Fagetum*, the coefficient of similarity of the associations is σs = 78.8 or σj = 65.0, which is to be expected. They are distinguished by characteristic and distinguishing species and Southeast European-Illyrian species, on the one hand, and Southeast Alpine species on the other.

There is less similarity with the phytocenosis *Polysticho lonchitis-Fagetum* var. geogr. *Salix waldsteiniana*, which is a neighbour in the space (σs = 64.2 or σj = 47.6), indicating their difference. There is even less similarity with the geographic variant *Ranunculo platanifolii-Fagetum* var. geogr. *typica*, where σs = 51.1 or σj = 34.3, although characteristic species of the associations *Ranunculo platanifolii-Fagetum* s. lat., *Ranunculus platanifolius* and *Polystichum lonchitis* are present in the association, just as in the majority of other altimontane beech forests in Slovenia. The lowest similarity is with the geographic variant *Anemono trifoliae-Fagetum* var. geogr. *Helleborus niger* (σs = 43.3 or σj = 27.7). The comparisons confirm the independence of the association *Aconito paniculati-Fagetum*. Characteristic and distinguishing species of the association *Aconito paniculati-Fagetum* indicate with their presence and cover values its ecological conditions and its independence.

5 PROBLEMS OF THE ASSOCIATION *RANUNCULO PLATANIFOLII-FAGETUM* S. LAT. IN CONNECTION WITH OTHER ALTIMONTANE BEECH ASSOCIATIONS

The division of the boundary between altimontane and lower subalpine vegetation levels in Slovenia still today causes difficulties. The classical zonal division of the central eastern Alps of H. Mayer presents problems for the boundary of the altimontane zone from 1000/1100 to 1300 m, and this rises towards the southeast because of the warmer climatic influences that come from the Mediterranean and Pannonia. Phytocenoses from the Synthesis Table certainly grow in the altimontane zone. Some are already present in the lower montane zone (e.g., 880 a.s.l.) and extend to the lower subalpine zone (e.g., above 1420 m).

The association *Ranunculo platanifolii-Fagetum* is a typical altimontane beech association with poorly expressed characteristic species. Marinček & Čarni (2010) state as characteristic species *Ranunculus platanifolius*, *Polygonatum verticillatum* and *Adenostyles glabra*. All are relative characteristic species, among which the species *Ranunculus platanifolius* is the only one that is more or less acceptable, the other two, *Polygonatum verticillatum* and *Adenostyles glabra,* are mainly present in all altimontane and subalpine beech associations of Slovenia of the Illyrian alliance *Aremonio-Fagion*. The authors (Marinček & Čarni 2010: 21) are mistaken in the statement: "The group of distinguishing species of syntaxons of the association *Polysticho lonchitis-Fagetum* negatively distinguishes against subalpine beech forests of the altimontane syntaxon *Ranunculo platanifolii-Fagetum*", and continue: "Some of the species also appear as coincidental species in the region of the association *Ranunculo platanifolii-Fagetum*."

The Codex of Phytocenological Nomenclature (Weber et al. 2000) does not allow for characteristic negative differentiation of an association, particularly with relative characteristic and distinguishing species that are more or less present in all altimontane and subalpine beech associations. Of the species that distinguish the association *Polysticho lonchitis-Fagetum* s. lat. from the association *Ranunculo platanifolii-Fagetum* s. lat. (Marinček & Čarni 2010: 21), because of the higher level of presence in the association *Polysticho lonchitis-Fagetum* s. lat., only *Salix waldsteiniana*, *Carex ferruginea*, *Viola biflora* and *Allium victorialis* are more or less acceptable, although they also grow in other phytocenoses of altimontane beech forests, mainly in the association *Ranunculo platanifolii-Fagetum* s. lat. (see Synthesis Table).

Probably because they are aware of the relativity of the characteristic species of the association *Ranunculo platanifolii-Fagetum* s. lat., the authors stress the difference of growth of beech in subalpine beech forests, namely: "The finding is important that subalpine beech forests, because of low habit due to snow, have a particular appearance, which physiognomically distinguishes

them from high growing altimontane beech forests." (Marinček & Čarni 2010: 21). The physiognomic appearance of beech stands is not a category of the Codex of Phytocenological Nomenclature. Above all this finding is not acceptable because it is the same species in the two phytocenoses, i.e., beech – *Fagus sylvatica*.

The next finding, that "altimontane beech forests differ from subalpine species with partially thermophilous character", is a weak finding. Of the species cited in the paper by Marinček & Čarni (2010: 21) the following are not in the tables: *Tamus communis*, *Acer platanoides*, *Asarum europaeum* and *Hedera helix*. The species *Melittis melisophyllum*, *Polygala chamaebuxus*, *Rhamnus fallax* and *Carex flacca* are present very little, and the species *Carex alba*, *Erica carnea*, *Lamium orvala*, *Omphalodes verna* and *Primulala vulgaris* are satisfactory. For the species *Carex alba* and *Erica carnea*, which are represented only in the geographic variant *Ranunculo platanifolii-Fagetum* var. geogr. *typica*, it could be said that the cause of their appearance is the geological base, since the two species are dolomitophilous, as is the species already mentioned *Polygala chamaebuxus*. The taksons *Lamium orvala* and *Omphalodes verna* are fresh loving species. The species *Primula vulgaris,* which is more represented in the association *Ranunculo platanifolii-Fagetum* s. lat. than in other altimontane beech forests, has an even more thermophilous character.

The authors state with regard to the association *Ranunculo platanifolii-Fagetum* s. lat. that in it are present "some species of the order *Fagetalia sylvaticae* or class *Querco-Fagetea*, with a slight thermophilous character" (Marinček & Čarni 2010: 21). We agree with this finding, although the following species are not mentioned in the tables: *Acer platanoides, Asarum europaeum* and *Hedera helix*. We agree in relation to the appearance of some ecologically more demanding species only in altimontane beech forests.

Marinček & Čarni (2010: 22) continue by citing the species that distinguish the geographic variants. For the geographic variant *Ranunculo platanifolii-Fagetum* var. geogr. *typica,* they state 22 species, of various ecological properties, which are supposed to be present only in this geographic variant. Among them, the species *Astrantia bavarica* and *Digitalis grandiflora* do not appear in the tables. The species *Helleborus niger* subsp. *niger, Aposeris foetida*, *Lonicera xylosteum*, *Luzula luzuloides*, *Dryopteris expansa*, *Gymnocarpium dryopteris* and *Hieracium murorum*, which are present everywhere, cannot be considered in this group. Some of them are barely sufficiently represented, e.g., *Astantia carniolica*, *Epipactis helleborine*, *Corylus avellana* and *Helleborus odorus*.

For the geographic variant *Ranunculo platanifolii-*-Fagetum var. geogr. *Calamintha grandiflora,* Marinček (1998: 104) envisaged five distinguishing species: *Festuca altissima*, *Calamintha grandiflora*, *Vicia oroboides*, *Allium victorialis* and *Aremonia agrimonioides*. In the tabular material (Marinček & Čarni 2010), the species *Vicia oroboides* and *Allium victorialis* are not given as distinguishing species, but only in passing in the text (Marinček & Čarni 2010: 23). In corroboration of the geographic variant *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora,* the authors add the completely widespread species *Lathyrus vernus* and *Cirsium erisithales* and in the tables the unpublished species *Sesleria autumnalis* and the species *Carex pilosa*, which has greater diagnostic weight but is only present with minor permanence. The species *Aremonia agrimonioides* and *Festuca altissima* are more or less widespread in all beech forests, also in the altimontane zone. The only quality distinguishing species is *Calamintha grandiflora*, which the authors also establish.

The geographic variants *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* and *Ranunculo platanifolii-Fagetum* var. geogr. *typica* are very similar, as the coefficients also indicate (σs = 70.3 and σj = 54.2) and they confirm common membership of the macroassociation *Ranunculo platanifolii-Fagetum* s. lat.

The synsystematic position of the geographic variant *Ranuculo platanifolii-Fagetum* var. geogr. *Isopyrum thalictroides* (= *Isopyro-Fagetum* var. *Adenostyles alliariae* Ž. Košir 1979) is uncertain within the complex of the macroassociation *Ranunculo platanifolii-Fagetum* s. lat., as the indices of similarity of the phytocenoses confirm, σs = 43.7 and σj = 27.9. The indices of the geographic variants *Ranunculo platanifolii-Fagetum* var. geogr. *typica*, for which σs = 43.7 and σj = 31.4 and *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora*, for which the indices are σs = 55.7 and σj =38.6, indicate a similar relation. Marinček & Čarni (2010: 23) state that the geographic variant *Ranunculo platanifolii-Fagetum* var. geogr. *Isopyrum thalictroides* is close to the Dinaric geographic variant: "In view of the edaphic conditions, it is close to the Dinaric variant." This is partially true but the indices of similarity indicate an independent association, as originally described *Isopyro-Fagetum* var. *Adenostyles alliariae* (Ž. Košir 1979). It is evident from the Synthesis Table that, of the characteristic species, only the species *Ranunculus platanifolius* is adequately represented. The finding that: "The complete absence of some species of the alliance *Aremonio-Fagion* negatively distinguishes it from both the Dinaric and the Pre-alpine geographic variants." is awkward. The presence of three of its characteristic species (*Isopyrum thalictoides*, *Corydalis cava*, *Rumex alpestris*) and six distinguishing species (*Scilla bifolia*, *Veratrum album* s. lat., *Adoxa moschatelina*, *Polygonatum verticillatum*,

Chrysosplenium alternifolium and *Stellaria montana*) (see Synthesis Table, column 7) indicates the independence of the association *Isopyro-Fagetum*. It is questionable how diagnostically suitable some of the distinguishing species are.

In view of the appearance of the species *Stellaria montana* and *Corydalis cava* in the association *Isopyro-Fagetum* one might consider a similarity with the association *Stellario montanae-Fagetum*, but the indices of similarity indicate a difference between the phytocenoses (σs = 59.4 and σj = 42.3), although they are closer than all other altimontane beech associations. They are similar in terms of a standard floristic composition of beech-associated species in the wider sense, of high stemmed and partially also spruce-associated species, just like more or less all altimontane beech associations of the alliance *Aremonio-Fagion*. They are also similar in terms of ecological conditions. The difference is clear in the characteristic and distinguishing species of the associations and the presence of the species *Acer pseudoplatanus*, which explicitly dominates in the association *Stellario montanae-Fagetum*. The species *Isopyrum thalictroides, Crocus vernus*, *Leucojum vernum* and *Ranunculus ficaria* (= *Ficaria verna*), which Marinček & Čarni (2010: 23) state, distinguish the association *Isopyro-Fagetum* from other altimontane beech forests.

Comparison between the phytocenoses *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* and *Rhododendro hirsuti-Fagetum* var. geogr. *Anemone trifolia* subvar. geogr. *Omphalodes verna* also interested us, where σs = 49.7 and σj = 33.0, as well as with the phytocenosis *Ranunculo platanifolii-Fagetum* var. geogr. *typica*, where σs = 57.8 and σj = 35.1. The indices and the Synthesis Table demonstrate in an exemplary manner the independence of the phytocenoses. In relationship terms, the phytocenoses *Ranunculo platanifolii-Fagetum* var. geogr. *typica* and *Anemono trifoliae-Fagetum* var. geogr. *Helleborus niger* are closer, where σs = 66.4 and σj = 49.8.

The next synsystematic problem of interest is the relation between the phytocenoses *Ranunculo platanifolii-Fagetum* s. lat. and *Polysticho lonchitis-Fagetum* s. lat. Both phytocenoses have two, or the latter three (?) geographic variants: Dinaric, Pre-alpine and a third undefined *Polysticho lonchitis-Fagetum* var. geogr. *Anemone trifolia* (?). Marinček & Čarni (2010: 25) give **distinguishing species** of the association *Polysticho lonchitis-Fagetum* s. lat., namely the generally widespread species in altimontane and subalpine beech associations *Polystichum lonchitis*, then the species *Carex ferruginea* and *Rhododendron hirsutum*, which are more numerous in the association *Rhododendro hirsuti-Fagetum*, and *Pinus mugo* with equal presence. The species *Salix appendiculuta*, *Sorbus chamaemespilus* and *Lonicera caerulea* are modestly represented in the phytocenosis *Polysticho lonchitis-Fagetum* s. lat. and the last two even not at all in the geographic variant *Polysticho lonchitis-Fagetum* var. geogr. *Salix waldsteiniana* (see Synthesis Table).

The selection of two subalpine species *Salix waldsteiniana* and *S. glabra* as distinguishing species of the geographic variant *Polysticho lonchitis-Fagetum* var. geogr. *Salix waldsteiniana* is sensible but the species *Salix glabra,* with the same level of presence, is also present in the association *Rhododendro hirsuti-Fagetum* (see Synthesis Table).

For the geographic variant *Polysticho lonchitis-Fagetum* var. geogr. *Allium victorialis*, the distinguishing species are *Allium victorialis*, which is an Alpine-Altai species that grows here in the alpine world (Julian Alps, Karavanke, Savinja Alps), and because of the ecological conditions (snow cover, long-lasting snow) also on high mountain Snežnik, Trnovski gozd and in Kočevje, and the species *Calamintha grandiflora*, which is a southeast European-Illyrian species, generally distributed in Slovenia in the Dinaric and Pre-dinaric phytogeographic regions. Irrespective of phytogeographic affiliation, the distinguishing species *Allium victorialis* is well chosen. This cannot be said for the wider distinguishing group, in which the species *Euphorbia carniolica* and *Lamium orvala* are modestly represented. Marinček & Čarni (2010: 26) additionally find that "the favourable ecological conditions are shown by a lot of ecologically more demanding taxons, such as: *Adoxa moschatelina*, *Arum maculatum*, *Ranunculus lanuginosus*, *Carex pilosa*, *Euphorbia amygdaloides*, *Lathyrus vernus*, *Cardamine bulbifera*, *Prenanthes purpurea* and some others." This ecological specification holds true, although the majority of the enumerated species are also represented in other subalpine and altimontane beech forests, which is nothing special. Among these species only the species *Lathyrus vernus* is an exception, which decisively predominates in the phytocenosis *Polysticho lonchitis-Fagetum* var. geogr. *Allium victorialis*.

The geographic variant *Polysticho lonchitis-Fagetum* var. geogr. *Anemone trifolia* (?) (Poldini & Nardini 1993: 248–255) is represented with five relevés. Compared to the other geographic variant, the phytocenosis is floristically impoverished and is in between the phytocenoses *Ranunculo platanifolii-Fagetum* s. lat., *Polysticho lonchitis-Fagetum* s. lat. and *Anemono trifoliae-Fagetum* s. lat. It could be said that it is fairly undefined so we have not entered it in the Synthesis Table.

For the phytocenosis *Polysticho lonchitis-Fagetum* s. lat. Marinček & Čarni (2010: 25) again state that "predominantly pure beech stands of low habit as a result of

snow prevail, with individual interspersed sycamore, spruce and fir." They had already previously noted that the physiognomic appearance of beech is probably an important factor in judging the autonomy of an association (Marinček & Čarni 2010: 21).

It is evident from the Synthesis Table that the floristic compositions of altimontane and subalpine beech forests are fairly similar or uniform. The floristic differences are sometimes minimal and there are no good characteristic or distinguishing species for individual phytocenoses, although their ecological conditions and phenological development and the shape of tree species can be different. *Ranunculo platanifolii-Fagetum* s. lat. is such an association, which has fairly even ecological conditions in the high mountains and there are therefore not exaggerated differences between the flora of altimontane and subalpine beech forests, especially with the phytocenosis *Polysticho lonchitis-Fagetum* s. lat. The coefficients of similarity of phytocenoses among these phytocenoses, in relation to the geographic variants, are the following: between *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* and *Polysticho lonchitis-Fagetum* var. geogr. *Allium victorialis*, σs = 75.0 and σj = 60.0, between *Ranunculo platanifolii-Fagetum* var. geogr. *typica* and *Polysticho lonchitis-Fagetum* var. geogr. *Salix waldsteiniana*, σs = 63.5 and σj = 46.6. The coefficients confirm the great mutual similarity of the mentioned phytocenoses, especially if these are compared with the similarities between the geographic variants *Polysticho lonchitis-Fagetum* var. geogr. *Allium victorialis* and *Polysticho lonchitis-Fagetum* var. geogr. *Salix waldsteiniana*, where σs = 71.0 and σj = 55.0, or between the geographic variants *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* and *Ranunculo platanifolii-Fagetum* var. geogr. *typica*, where σs = 70.3 and σj = 54.2. The combination of the associations *Ranunculo platanifolii-Fagetum* s. lat. and *Polysticho lonchitis-Fagetum* s. lat. into a uniform association with two geographic variants and two altitudinal variants is a question. Although the association *Ranunculo platanifolii-Fagetum* s. lat. is poorly defined with the present characteristic species, with specific corrections and supplementary distinguishing species, the association *Ranunculo platanifolii-Fagetum* s. lat. could be retained, and the phytocenosis *Polysticho lonchitis-Fagetum* s. lat. with two altitudinal variants included in it. It would be sensible to retain the association *Ranunculo platanifolii-Fagetum* s. lat. such that new characteristic and distinguishing species are determined for it. Its beech stands are economically interesting and, together with the association *Anemono trifoliae-Fagetum* s. lat., they cover a considerable area. The decision of the Austrian phytocenologists Willner & Grabherr (2007: 157-158) is interesting and more or less questionable, who combined the associations *Ranunculo platanifolii-Fagetum* and *Polysticho lonchitis-Fagetum* with the associations *Aconito paniculati-Fagetum* and *Isopyro-Fagetum* var. *Adenostyles alliariae* into an altimontane beech association *Saxifrago rotundifolii-Fagetum*.

For updating the association *Ranunculo platanifolii-Fagetum* s. lat. the characteristic species would be *Luzula sylvatica* subsp. *sylvatica*, *Ranunculus platanifolius* and *Polystichum lonchitis*. The generally widespread and numerical species in this region *Polygonatum verticillatum* and *Adenostyles glabra* would be removed (see Synthesis Table). The distinguishing species of the association are more convincing, namely *Aremonia agrimonioides*, *Veratrum album* subps. *album*, *Galeobdolon flavidum*, *Hacquetia epipactis* and *Anthriscus nitida*. These are ecologically more demanding species, which stress the specific productivity and freshness of the habitat (see Synthesis Table).

For the geographic variant *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora*, the distinguishing species are *Calamintha grandiflora* and *Carex pilosa*. The altitudinal variant *Ranunculo platanifolii-Fagetum* var. alt. *Allium victorialis* would be in the framework of this geographic variant.

For the geographic variant *Ranunculo platanifolii-Fagetum* var. geogr. *typica* the distinguishing species are *Primula vulgaris* and *Polygonatum multiflorum*. The next altitudinal variant would be *Ranunculo platanifolii-Fagetum* var. alt. *Salix waldsteiniana* (see Synthesis Table). By this specification, the similarity between the geographic and altitudinal variants would be σs = 71.5 and σj = 55.7 (see Table, compare column 7), which confirms the wisdom of combining the associations *Ranunculo platanifolii-Fagetum* s. lat. and *Polysticho lonchitis-Fagetum* s. lat. The habit of one species, in this case beech, plays no role from a theoretical point of view although from the point of view of practical forestry, this is stressed with the altitudinal variants. The phytocenoses could be divided, despite the similarity, only if another numerically sufficiently strong co-dominant tree species were available, which would stress more or less specific ecological conditions.

We also compared other altimontane and subalpine beech associations, as is evident from the Synthesis Table and the Table of Comparison of Similarity of altimontane and subalpine beech associations of Slovenia of the Illyrian alliance *Aremonio-Fagion* according to Sørensen and Jaccard. The coefficients in the main confirm the independence of associations and, in some cases, closer or more distant relatedness (see Table of Comparison).

Compared phytocenoses	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Sørensen	70.3	55.7	47.8	43.7	75.0	63.5	71.5	86.8	59.4	58.9	51.1	49.7	57.8	66.4	59.5	34.5	78.8	64.2	43.3	71.0	42.6	51.6	69.4	62.3	58.0	48.0
Jaccard	54.2	38.6	31.4	27.9	60.0	46.6	55.7	50.3	42.3	41.7	34.3	33.0	35.1	49.8	42.4	22.0	65.0	47.6	27.7	55.0	27.1	34.8	53.2	45.3	40.8	31.5

1 *Ranunculo-Fagetum* v. g. *Calamintha grandiflora: Ranunculo-Fagetum* v. g. *typica*
2 *Ranuculo-Fagetum* v. g. *Calamintha grandiflora: Ranunculo-Fagetum* v. g. *Isopyrum thalictroides*
3 *Ranunculo-Fagetum* v. g.. *Calamintha grandiflora: Ranunculo-Fagetum* v. g. *Isopyrum thalictroides*
4 *Ranunculo-Fagetum* s. lat.*: Ranunculo-Fagetum* v. g. *Isopyrum thalictroides*
5 *Ranunculo-Fagetum* v. g. *Calamintha grandiflora: Polysticho-Fagetum* v. g. *Allium victorialis*
6 *Ranunculo-Fagetum* v. g. *typica: Polysticho-Fagetum* v. g. *Salix waldsteiniana*
7 *Ranunculo-Fagetum* v. g. *Calamintha grandiflora & Polysticho-Fagetum* v. g. *Allium victorialis: Ranunculo-Fagetum* v. g. *typica & Polysticho-Fagetum* v. g. *Salix waldsteiniana*
8 *Ranunculo-Fagetum* v. g. *Calamintha grandiflora: Stellario-Fagetum*
9 *Ranunculo-Fagetum* v. g. *Isopyrum thalictroides: Stellario-Fagetum*
10 *Ranunculo-Fagetum* s. lat. *& Polysticho-Fagetum* s. lat.*: Stellario-Fagetum*
11 *Ranunculo-Fagetum* v. g. *typica: Aconito-Fagetum*
12 *Ranunculo-Fagetum* v. g. *Calamintha grandiflora: Rhododendro-Fagetum* v. g. *Anemone trifolia* sv. g. *Omphalodes verna*
13 *Ranunculo-Fagetum* v. g. *typica: Rhododendro-Fagetum* v. g. *Anemone trifolia* sv. g. *Omphalodes verna*
14 *Ranunculo-Fagetum* v. g. *typica: Anemono-Fagetum* v. g. *Helleborus niger*
15 *Stellario-Fagetum: Polysticho-Fagetum* v. g. *Allium victorialis*
16 *Stellario-Fagetum: Rhododendro-Fagetum* v. g. *Anemone trifolia* sv. g. *Omphalodes verna*
17 *Stellario-Fagetum: Aconito-Fagetum*
18 *Aconito-Fagetum: Polysticho-Fagetum* v. g. *Salix waldsteiniana*
19 *Aconito-Fagetum: Anemono-Fagetum* v. g. *Helleborus niger*
20 *Polysticho-Fagetum* v. g. *Allium victorialis: Polysticho-Fagetum* v. g. *Salix waldsteiniana*
21 *Polysticho-Fagetum* v. g. *Allium victorialis: Rhododendro-Fagetum* v. g. *Anemone trifolia* sv. g. *Omphalodes verna*
22 *Anemono-Fagetum* v. g. *Helleborus niger: Polysticho-Fagetum* v. g. *Salix waldsteiniana*
23 *Cardamine-Fagetum* var. *Abies alba (= Aceri-Fagetum pohoricum): Cardamine-Fagetum* var. *Abies alba (= Savensi--Fagetum* var. *Abies alba)*
24 *Cardamine-Fagetum: Cardamine-Fagetum* var. *Abies alba*
25 *Stellario-Fagetum: Ranunculo-Fagetum* v. g. *Isopyrum thalictroides*
26 *Aconito-Fagetum: Ranunculo-Fagetum* v. g. *Isopyrum thalictroides*

Statistical review of comparisons between altimontane beech of Slovenia according to Sørensen and Jaccard.

6 DISCUSSION WITH CONCLUSIONS

The contribution of Marinček & Čarni (2010) in the main brings a short note of numerous relevés (199) of the altimontane phytocenosis *Ranunculo platanifolii--Fagetum* s. lat., a short description of some other altimontane phytocenoses, which are or are supposed to be found in Slovenia. "Among other things, the aim is to present the rich articulation of the suballiance *Saxifrago-Fagenion*." (Marinček & Čarni 2010: 4). A fundamental presentation of their results is lacking, or conclusions on the appearance and relations among phytocenoses of altimontane and subalpine beech associations of Slovenia of the Illyrian alliance *Aremonio-Fagion*, which would most authentically be presented by a synthesis table, perhaps with the support of some of the available computer methods. It is mentioned in passing, for example, in the case of the association *Stellario montanae-Fagetum* that "phytocenological research has shown". We wished to supplement this deficiency with the present paper by comparing the most relevant altimontane and subalpine beech associations of Slovenia of the Illyrian alliance *Aremonio-Fagion*. The position and relation among them is exemplarily shown by the Synthesis Table, on the basis of which we have noted and based our comments.

In relation to statistical computer methods, we are of the opinion that they can be of assistance but not without critical judgement, which is especially necessary in the treatment of both floristically and ecologi-

cally sensitive phytocenoses of altimontane and subalpine beech forests. The coefficients of similarity have relative value, the researcher's diagnosis of the floristic and partially ecological basis, insofar as it is well known, is decisive.

The synsystematic position of the altimontane beech forests in Slovenia discussed is made more difficult because of some uneven ecological conditions, such as a carbonate bedrock, mezoclimate and relief. These condition the coordinated development of beech, partially spruce vegetation and high stemmed vegetation, which have a decisive role in these beech forests. So the content of the flora is very uneven in these phytocenoses. There are differences in the soil layers and in very rarely perceived microclimatic phenomena. Marinček & Čarni (2010: 23) already draw attention to this when, in the case of individual geographic variants of the association *Ranunculo platanifolii-Fagetum* s. lat., they note "that despite the evident ecological particularities of the geographic variants, these are not reflected to an expected extent in the vegetation cover". Thus the position of the association *Ranunculo platanifolii-Fagetum* s. lat. with its geographic variants is fairly complicated in comparison with other altimontane and some subalpine beech associations on a carbonate base.

Irrespective of the evenness of the vegetation cover of altimontane beech associations on carbonates, we accept the existence of the association *Ranunculo platanifolii-Fagetum* s. lat., with correction of its characteristic species and additional distinguishing species, which more reinforce its synsystematic position in the circle of carbonate altimontane beech associations of the Illyrian alliance *Aremonio-Fagion*. In this, we must first stress the independence of the associations *Stellario montanae-Fagetum*, *Aconito paniculati-Fagetum* and *Isopyro-Fagetum* (*Isopyro-Fagetum* var. *Adenostyles alliariae*) and second, combine the phytocenosis *Polysticho lonchitis-Fagetum* s. lat. with its "geographic variants" of the association *Ranunculo platanifolii-Fagetum* s. lat. The specification of a variant with the Alpine-Altai species *Allium victorialis* and the northern Alpine-Arctic species *Salix waldsteiniana* is more suitable for the altitudinal variant, if we follow as model W. & A. Matuszkiewicz (1981). Thus the association *Ranunculo platanifolii-Fagetum* s. lat. would have two geographic and two altitudinal variants. The floristic composition of the phytocenoses *Ranunculo platanifolii-Fagetum* s. lat. and *Polysticho lonchitis-Fagetum* s. lat. is very much the same and only the species *Carex ferruginea* and *Rhododendron hirsutum* satisfactorily distinguish them, which are represented in the association *Rhododendro hirsuti-Fagetum*, and the species *Pinus mugo*, with the same presence in both associations. The species *Polystichum lonchitis,* though, is distributed throughout altimontane and subalpine beech associations. Thus understood, the association *Ranunculo platanifolii-Fagetum* s. lat., with its geographic variants with the species *Calamintha grandiflora* and typical species, and altitudinal variants with the species *Allium victorialis* and *Salix waldsteiniana,* is acceptable. The proposed solution enables an understanding of *Ranunculo platanifolii-Fagetum* s. lat., although in view of the Codex, we must include the geographic variant *Ranunculo platanifolii-Fagetum* s. lat. in the previously (Zupančič 1967, 1969, Marinček et al. 1993), first published associations *Stellario montanae-Fagetum* and *Aconito paniculati-Fagetum*, which would not be completely sensible.

The geographic variant *Polysticho lonchitis-Fagetum* var. geogr. *Anemone trifolia* (?) (Poldini & Nardini 1993), presented with five phytocenological relevés, is unclear, floristically impoverished and more similar to poorer forms of the association or the geographic variant *Anemono trifoliae-Fagetum* var. geogr. *Luzula nivea*. In short, the table presents untypical forms of one or other phytocenoses, in our opinion least of all the phytocenosis *Polysticho lonchitis-Fagetum* s. lat. Because of the incomplete specification, mainly the mosaic of relevés, we have not entered it in the Synthesis Table. It is incomprehensible that Marinček accepted it as representative and first published it. In our opinion the first publication of the altitudinal variant *Ranunculo platanifolii-Fagetum* var. alt. *Salix waldsteiniana* (= *Polysticho lonchitis-Fagetum* var. geogr. *Salix waldsteiniana*) is the table with ten relevés in the article Sub-alpine beech forests in the Škofja Loka hills (Marinček 1985: 186–189). This publication is not cited in the literature of the paper by Marinček & Čarni (2010).

In the Synthesis Table, we have included for comparison of altimontane beech associations of the Illyrian alliance *Aremonio-Fagion,* the association or geographic variant *Anemono trifoliae-Fagetum* var. geogr. *Helleborus niger* with two tables, which best represent this altimontane association (Marinček et al. 1989: Tables 1 and 2). We have specified in this the following characteristic species: *Carex alba*, *Vaccinium myrtillus*, *V. vitis-idaea*, *Picea abies* and *Larix decidua*. The Synthesis Table showed that these species to a large extent also appear in other altimontane beech associations. The species *Picea abies* and *Larix decidua* are present slightly less in other altimontane beech associations, which, in terms of median cover values and level of permanence, stand out in the association *Anemono trifoliae-Fagetum* s. lat., so we have reassessed them in the distinguishing species. We have left out other characteristic species and in place of them chosen the species *Polygala chamaebuxus* and *Orthilia secunda*. Both species thrive in mod-

erately acidic or neutral habitats on sandy soils. The species *Polygala chamaebuxus,* though, is an indicator of dolomite or dolomiticised limestone bedrock, which is characteristic of the association *Anemono trifoliae-Fagetum* s. lat.

In the publication by Zupančič (1969), we presented with eight relevés a third geographic variant *Aceri--Fagetum pohoricum* from the ranks of altimontane beech associations although we cannot place it in the Illyrian but in the Central-European floral province. We did not subsequently discuss this further. It seemed worthwhile to include this phytocenosis in the Synthesis Table and the similar phytocenosis of Ž. Košir (1979: 105–150) *Savensi-Fagetum* var. *Abies alba* (= var. *silicicolum*) on Pohorje. We classify these two phytocenoses in altimontane beech associations with the co-dominant species *Acer pseudoplatanus*. The result of comparison showed the identity of the phytocenoses *Aceri-Fagetum pohoricum* and *Savensi-Fagetum* var. *Abies alba* (= var. *silicicolum*). According to the Codex of Phytocenological Nomenclature, we validly designated the association *Cardamine waldsteinii-Fagetum* Ž. Košir 1962 var. *Abies alba* (Zupančič 1969) Ž. Košir 1979 (the original, invalid name was *Aceri-Fagetum pohoricum*). The characteristic species of the association are *Cardamine waldsteinii* (= *Cardamine savensis* = *Dentaria savensis*), *Milium effusum* and *Luzula pilosa*, and the distinguishing species *Abies alba* and *Acer pseudoplatanus*. The characteristic species and the distinguishing species *Abies alba* explicitly distinguish the phytocenosis *Cardamine waldsteinii-Fagetum* var. *Abies alba* from other altimontane beech phytocenoses. The distinguishing species *Acer pseudoplatanus* is a co-constructor of the association because of its numerical appearance. The characteristic and distinguishing species define the phytocenosis as fresh loving, moderately acidic, on neutral to moderately acidic habitats.

We classify altimontane and subalpine beech associations of the Illyrian floral province into the Illyrian alliance of beech forests *Aremonio-Fagion*. We agree with Marinček & Čarni (2010: 3) that in 1993, with the nomenclature revision of the alliance it was identified with twelve more or less southeast European-Illyrian species or their characteristic species (Marinček et al. 1993). In the alliance *Aremonio-Fagion* we must further include Southeasteuropean-Illyrian species that are distributed in submontane and montane sub-alliances, i.e.: *Hacquetia epipactis*, *Knautia drymeia* subsp. *drymeia*, *Cardamine kitaibeliana*, *C. waldsteinii*, *Lamium orvala*, *Scopolia carniolica*, *Ruscus hypoglossum*, *Geranium nodosum*. Other southeast European-Illyrian species can also be present, which are characteristic of other synsystematic units (e.g., *Homogyne sylvestris*, *Aposeris foetida* etc.). The division of the alliance *Aremonio-Fagion* into four sub-alliances was risky. Among them, the best defined with its own four southeast European-Illyrian species is the montane alliance *Lamio orvalae-Fagenion*, others are poorly defined, of which the worst defined is the altimontane-subalpine sub-alliance *Saxifrago rotundifoliae-Fagenion* with only one southeast European-Illyrian species *Homogyne sylvestris*, which belongs in the order *Vaccinio-Piceetalia*, all the others are Central European species. Willner & Grabherr (2007: 157–158) classified the suballiance *Saxifrago-Fagenion* in the suballiance *Lonicero alpigenae-Fagenion*, which combines Alpine-dinaric beech and spruce-fir beech phytocenoses on a carbonate base. A paper has been published on our doubts in relation to Illyrian suballiances (Zupančič 2003). The mentioned species, some of which are called "Illyrian" or "Illyricoid", occupy a wider region than the Illyrian province or are only here in disjunct areas, so we have characterised them as Southeast European-Illyrian species. (Real) Illyrian species are in non-forest habitats.

The suballiance *Saxifrago rotundifoliae-Fagenion* was created with the revision of the association *Anemono trifoliae-Fagetum* (Marinček et al. 1989: 34–37 and 57–58) under the influence of the Hungarian phytocenologist Borhidi, who more or less successfully published submontane-montane Illyrian suballiances from 1963 to 1966. Our presentation of the suballiance *Saxifrago rotundifoliae-Fagenion* is undoubtedly unsuccessful. With suballiances, especially the suballiance *Saxifrago rotundifoliae-Fagenion,* we give rise to undesirable criticism about the existence of the Illyrian alliance of beech associations *Aremonio-Fagion*. With such a suballiance, which has distinguishing species only from Central European species and does not even have its own characteristic species, we create among critics doubts that, even for our Illyrian floral province, the Central European alliance *Fagion sylvaticae* is enough or perhaps with more tolerant European phytocenologists, as a suballiance, e.g., *Aremonio-Fagenion*. Willner & Grabherr (2007: 144–148) can thus be seen to include the Illyrian alliance *Aremonio-Fagion* in the Central European alliance *Fagion sylvaticae*, which embraces European beech and spruce-fir-beech forests. We must be aware that the suballiance *Saxifrago rotundifoliae-Fagenion,* presented with Central European species, also or above all applies as a Central European alliance of beech forests *Fagion sylvaticae*. There are also difficulties with some Southeast European-Illyrian species from the alliance *Aremonio-Fagion*, with a wide distribution through the Illyrian floral province and there are only relative characteristic or distinguishing species of the alliance, e.g., *Cardamine enneaphyllos*,

Knautia drymeia subsp. *drymeia*, *Cyclamen purpurascens*, *Helleborus niger* subsp. *niger*, *Euphorbia carniolica*, *Anemone trifolia*, *Calamintha grandiflora*, *Hacquetia epipactis*, *Festuca drymeia* etc. Some authors persistently classify some species as Southeast European species, which they are not, e.g., *Primula vulgaris*, *Astrantia carniolica*, *Lonicera caprifolium*, *Fraxinus ornus*, *Ostrya carpinifolia* etc. It would be wise to consolidate the alliance *Aremonio-Fagion* with phytogeographically suitable Southeast European-Illyrian species and exclude unsuitable Central European species as characteristic or distinguishing species of "Illyrian" suballiances.

With this paper, substantiated with synthesis and analytical tables, we have attempted to clarify the appearance of altimontane and subalpine beech forests on a carbonate base of the Illyrian floral province (*Aremonio-Fagion*) and their synsystematic position and the syntaxonomic arrangement of individual phytocenoses on the basis of their characteristic and distinguishing species, and to avoid broad claims of the kind "phytocenological research has shown".

7 POVZETEK – SUMMARY

Vsebina

7.1 UVOD

Pričujoča razprava je odgovor na razpravo Marinčka & Čarnija (2010), s katero se v nekaterih delih ne moremo strinjati, zlasti ne s sintaksonomskim ovrednotenjem asociacije *Stellario montanae-Fagetum*, s predstavitvijo asociacije *Aconito paniculati-Fagetum* ter sintaksonomskim položajem asociacij *Ranunculo platanifolii-Fagetum* in *Polysticho lonchitis-Fagetum*. Za razjasnitev problemov smo izdelali analitično tabelo asociacij *Stellario montanae-Fagetum* (= *Aceri-Fagetum dinaricum*), *Aconito paniculati-Fagetum* (= *Aceri-Fagetum austroalpinum*) in *Cardamine waldsteinii-Fagetum* var. *Abies alba* (= *Aceri-Fagetum pohoricum),* ter sintezno tabelo, ki zajema prej imenovane tri asociacije, asociacijo *Ranunculo platanifolii-Fagetum* z geografskimi variantami *Calamintha grandiflora*, *Isopyrum thalictroides* in *typica*, asociacijo *Polysticho lonchitis-Fagetum* z geografskima variantama *Allium victorialis* in *Salix waldsteiniana* (Marinček & Čarni 2010), asociacijo *Rhododendro-Fagetum* (Dakskobler 1998) in asociacijo oziroma geografsko varianto *Anemono trifoliae-Fagetum* var. geogr. *Helleborus niger* (Marinček, Poldini & Zupančič 1989). Sintezna tabela ima 19 stolpcev, upoštevajoč posamezne subasociacije znotraj asociacije *Ranunculo platanifolii-Fagetum*, kot sta jih objavila avtorja Marinček & Čarni (2010), ter subasociacije v asociaciji *Anemono trifoliae-Fagetum,* kot so objavljene v razpravi avtorjev Marinčka, Poldinija & Zupančiča (1989). V razpravi ne bodo omenjene ekološke razmere, zgradbe asociacij, njihova floristična sestava in sintaksonomske uvrstitve v višje range, kar so avtorji že opisali v svojih razpravah. V nekaterih primerih pa bomo kritično obravnavali značilnice in razlikovalnice asociacij, in sicer primerjalno in posledično v nekaterih primerih glede na floristično sestavo.

7.2 METODA DELA

Fitocenološke raziskave temeljijo na standardni srednjeevropski metodi (Braun-Blanquet 1964, Westhoff & Van Der Maarel 1973) in upoštevajo fitocenološki kodeks (Weber, Moravec & Theurillat 2000). Taksonomska nomenklatura flore je usklajena po Mali flori Slovenije (Martinčič et al. 2007).

7.3 ASOCIACIJA *STELLARIO MONTANAE-FAGETUM*

Asociacija je bila prvič opisana leta 1967 kot *Aceri-Fagetum dinaricum* Wraber 1960 (n. nud.) (Zupančič 1967) in separatom dodana sintezna tabela za primerjavo med

dinarsko geografsko varianto in srednjeevropsko asociacijo *Aceri-Fagetum* J. & M. Bartsch 1940. Ponovno je bila geografska varianta *Aceri-Fagetum dinaricum* objavljena v primerjalni študiji javorovo-bukovih gozdov leta 1969 v sintezni tabeli (Zupančič 1969). Glede na novi Kodeks fitocenološke nomenklature (Barkman et al. 1976) smo leta 1993 geografsko varianto *Aceri-Fagetum dinaricum* preimenovali v asociacijo *Stellario glochidispermae-Fagetum* (Zupančič 1969) Marinček et al. 1993 (Marinček et al. 1993). Kasneje je Dakskobler s sodelavcema (1999) napravil revizijo agregata *Stellaria nemorum* L. v Sloveniji in ugotovil, da se vrsta *Stellaria glochidisperma* (Murb.) Freyn uvršča oziroma vključuje v vrsto *Stellaria montana* Pierrat, zato validno imenujemo asociacijo *Stellario montanae-Fagetum* (Zupančič 1969) Marinček et al. 1992 nom. nov. Asociacija *Stellario montanae-Fagetum* je bila leta 1969 po kodeksih fitocenološke nomenklature pravilno (validno) objavljena s 16 popisi v sintezni tabeli (člen 1) in nato glede na ime popravljena po floističnem principu (člen 34) (Weber et al. 2000).

V razpravi o altimontanskih bukovih gozdovih ilirske zveze *Aremonio-Fagion* Marinček & Čarni (2010: 23–24) kratko navajata naslednje: "V podzvezo *Saxifrago-Fagenion* nismo uvrstili sintaksona *Stellario glochidispermae-Fagetum* (Zupančič 1969) Marinček et al. 1993. Fitocenološke raziskave so pokazale, da ima takson le vrednost subasociacije. Zabeležen je tako v predalpski geografski varianti asociacije *Ranunculo platanifolii-Fagetum* (*Ranunculo platanifolii-Fagetum* var. geogr. *typica stellarietosum*) kot v dinarski geografski varianti (*Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora stellarietosum*)." Zaradi te trditve objavljamo analitično tabelo asociacije *Stellario montanae-Fagetum*, kjer je razvidno, da je 13 fitocenoloških popisov z območja Trnovskega gozda, po en popis pa s Kočevskega, z Idrijskega in Blegoša. Morda bi lahko bil vprašljiv popis z Blegoša, ki leži v predalpskem fitogeografskem območju, vendar ima specifičen položaj. To ugotavljata Marinček & P. Košir (1998), ko na Blegošu opisujeta dinarski bukov gozd *Omphalodo-Fagetum* (Tregubov 1957) Marinček et al. 1992 *ranunculetosum platanifolii* Marinček & P. Košir 1998, ki je po njunem mnenju "intrazonalno razširjen". Gre za disjunkt dinarske asociacije. Podobno je s fitocenološkim popisom asociacije *Stellario montanae-Fagetum* na Blegošu. Torej trditev, da je sintakson *Stellario montanae-Fagetum* zabeležen v dinarski in predalpski geografski varianti, ni točna.

Trditev, da je sintakson *Stellario montanae-Fagetum* le subasociacija sintaksona *Ranunculo platanifolii-Fagetum* s. lat., ni sprejemljiva, saj bi morala avtorja upoštevati časovno prednost več kot štirideset let prej objavljenega sintaksona *Stellario montanae-Fagetum* in sintakson *Ranunoculo platanifolii-Fagetum* vključiti v prvo objavljen sintakson *Stellario montanae-Fagetum* in ne obratno, kar sta storila.

Podobnost med fitocenozama *Stellario montanae-Fagetum* in *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* je po Sørensenovi velika (σs = 86,8), manjši je količnik po Jaccardu (σj = 50,3). Količnik Sørensenove nas vodi k prepričanju, da gre za eno fitocenozo s prednostnim imenom *Stellario montanae-Fagetum*, sintezna tabela pa nam kaže floristične in ekološke posebnosti med njima. Asociacija *Stellario montanae-Fagetum* ima jasno izražene diagnostične vrste, kot so značilnice *Stellaria montana*, *Polystichum aculeatum* in *Cardamine pentaphyllos* ter razlikovalnice *Acer pseudoplatanus*, *Scrophularia nodosa* in *Corydalis cava*. Značilnice in zlasti razlikovalnice kažejo na večjo vlažnost rastišča in so številno ali samo zastopane (*Cardamine pentaphyllos*) v asociaciji *Stellario montanae-Fagetum*. V geografski varianti *Ranunculo platanifolii-Fagetum* so prisotne le tu in tam, kar je razvidno iz Sintezne tabele. Pogostejši je le javor – *Acer pseudoplatanus*, ki pa ima majhno srednjo stopnjo navzočnosti in še manjšo srednjo pokrovno vrednost. V asociaciji *Stellario montanae-Fagetum* večinoma ni značilnic in razlikovalnic asociacije *Ranunculo platanifolii-Fagetum* oziroma se od osmih pojavljajo le štiri, z nizko navzočnostjo oziroma s slabo pokrovnostjo (*Luzula sylvatica* 32 II, *Ranunculus platanifolius* 3 II, *Aremonia agrimonioides* 4 III, *Veratrum album* subsp. *album* 2 II). Pri tem moramo opozoriti, da so značilnice in razlikovalnice asociacije *Ranunculo platanifolii-Fagetum* s. lat. relativne in se bolj ali manj pojavljajo v skoraj vseh altimontanskih in subalpinskih bukovih združbah ilirske zveze *Aremonio-Fagion*. Asociacije *Stellario montanae-Fagetum* ne moremo uvrstiti niti v dinarsko geografsko varianto *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* niti v predalpsko geografsko varianto *Ranunculo platanifolii-Fagetum* var. geogr. *typica*, saj niso v njej prisotne razlikovalnice obeh geografskih variant. Opozoriti moramo, da je asociacija *Stellario montanae-Fagetum* na splošno revna z značilnicami in razlikovalnicami ilirske zveze bukovih gozdov *Aremonio-Fagion,* še posebej v primerjavi z geografsko varianto *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora*. Nadaljnje analize bodo pokazale precej nižje količnike podobnosti med fitocenozama *Stellario montanae-Fagetum* in *Ranunculo platanifolii-Fagetum* s. lat.

Značilnica *Stellaria montana* asociacije *Stellario montanae-Fagetum* se številneje pojavlja v fitocenozi Ž. Koširja *Isopyro-Fagetum* var. *Adenostyles alliariae*, ki jo je Marinček vključil v geografsko varianto *Ranunculo platanifolii-Fagetum* var. geogr. *Isopyrum thalictroides,* in sicer k subasociaciji *stellarietosum nemorosae*. Poleg vrste *Stellaria montana* je v geografski varianti *Ranun-*

culo-Fagetum var. geogr. *Isopyrum thalictroides* prisotna še razlikovalnica *Corydalis cava*. Drugih diagnostičnih vrst za asociacijo *Stellario montanae-Fagetum* ni v geografski varianti *Ranunculo platanifolii-Fagetum* var. geogr. *Isopyrum thalictroides*. Omeniti moramo le zelo redko posamično pojavljanje gorskega javorja, ki fitocenozi bistveno ločuje. Indeksa podobnosti sta po Sørensenovi σs = 59,4 in po Jaccardu σj = 42,3, kar pomeni različnost fitocenoz.

Če v prvi fazi sprejmemo tezo Marinčka & Čarnija (2010: 19), da je asociacija *Isopyro-Fagetum* le geografska varianta asociacije *Ranunculo platinifolii-Fagetum* z vrsto *Isopyrum thalictroides,* bi bila le-ta z vrsto *Crocus vernus* razlikovalnica za geografsko varianto *Ranunculo platinifolii-Fagetum* var. geogr. *Isopyrum thalictroides.* Primerjava te z asociacijo *Stellario montanae-Fagetum* kaže na različnost, vendar tudi majhno sorodnost (σs = 58, σj = 40,8), z asociacijo *Aconito paniculati-Fagetum* pa sta si različni (σs = 48,0, σs = 31,5).

Asociacijo *Stellario montanae-Fagetum* smo primerjali še s tremi fitocenozami, in sicer z geografsko varianto *Polysticho lonchitis-Fagetum* var. geogr. *Allium victorialis,* kjer je σs = 59,5 oziroma σj = 42,4, in *Rhododendro hirsuti-Fagetum* var. geogr. *Anemone trifolia* subvar. geogr. *Omphalodes verna*, kjer je σs = 34,5 oziroma σj = 22,0, ter z združenima asociacijama *Ranunculo platanifolii-Fagetum* s. lat. in *Polysticho lonchitis-Fagetum* s. lat., kjer je σs = 58,9 oziroma σs = 47,7. Vsi količniki podobnosti fitocenoz potrjujejo različnost oziroma samostojnost imenovanih fitocenoz.

Podrobnejša raziskava asociacije *Stellario montanae-Fagetum* je pokazala, da se asociacija člení na dve subasociaciji.

Subasociacija *Stellario montanae-Fagetum typicum* subass. nova je splošno razširjena na apnenčastih ali dolomitnih, torej karbonatnih rjavih tleh na koluvialnem nanosu, kjer je A horizont globok, z manj skeleta. **Holotip subasociacije je popis številka 8 iz Analitične tabele.**

Subasociacija *Stellario montanae-Fagetum adenostyletosum alliariae* subass. nova uspeva na bolj svežih rastiščih od prejšnje. Razlikovalnice so: *Doronicum austriacum*, *Adoxa moschatelina*, *Adenostyles alliariae*, *Cicerbita alpina* in *Myosotis sylvatica*. Razen vrste *Adoxa moschatelina* so vse druge iz reda *Adenostyletalia* s. lat. Fagetalna vrsta *Adoxa moschatelina* pa predvsem poraščа sveža do vlažna tla. V manjši količini je v tleh opaziti izpiranje seskvioksidov, kar povzroča manjše zakisovanje tal in se tu in tam kaže v nekoliko večji prisotnosti kisloljubnih vrst. **Holotip subasociacije predstavlja popis številka 15 iz Analitične tabele.**

7.4 ASOCIACIJA *ACONITO PANICULATI-FAGETUM*

Prva predstavitev asociacije *Aconito paniculati-Fagetum* je bila leta 1969 pod imenom *Aceri-Fagetum austroalpinum* (Zupančič 1969). Leta 1993 smo jo po Kodeksu o fitocenološki nomenklaturi preimenovali v *Aconito paniculati-Fagetum* (Marinček et al. 1993). V razpravi iz leta 1969 je bila omenjena asociacija predstavljena v sintezni tabeli z osmimi fitocenološkimi popisi in kratkim ekološkim sestavkom (Zupančič 1969: 120–121). Pri preimenovanju asociacije *Aceri-Fagetum austroalpinum* v veljavno ime *Aconito paniculati-Fagetum* smo za nomenklaturni tip uporabili fitocenološki popis M. Wraberja (Marinček et al. 1993: 129–130).

Trditev "Sintakson je bil postavljen na podlagi enega popisa, ki je bil narejen leta 1960" Marinčka & Čarnija (2010: 27) ni točna ali celo zavajajoča oziroma da "Natančnejša sinsistematska uvrstitev bo mogoča, ko bo objavljena analitična tabela vsaj s petimi popisi". Ta komentar je toliko bolj nenavaden, ko avtorja v Literaturi navajata Zupančičevo razpravo iz leta 1969 (Marinček & Čarni 2010: 39).

Značilnice in razlikovalnice asociacije *Aconito paniculati-Fagetum* se v skupini altimontanskih bukovih gozdov Slovenije ilirske zveze *Aremonio-Fagion* pojavljajo le v njej. Značilnice so: *Aconitum lycoctonum* subsp. *ranunculifolium*, *Aconitum degenii* subsp. *paniculatum*, *Crepis paludosa*, *Geranium sylvaticum*, *Salix appendiculata*, *Rumex alpestris* in *Senecio cacaliaster*. Vse so izbrane iz reda *Adenstyletalia* s. lat. in nazorno kažejo na sveže rastišče asociacije. Razlikovalnice so: *Acer pseudoplatanus* z najvišjo srednjo pokrovno vrednostjo med altimontanskimi bukovimi združbami, *Myrrhis odorata* in *Geum rivale*. Vse imenovane diagnostične vrste za asociacijo so prisotne z najvišjo stopnjo navzočnosti in večinoma tudi z najvišjo srednjo pokrovno vrednostjo. Vse potrjujejo svežost in visokogorstvo asociacije *Aconito paniculati-Fagetum*.

Fitocenološki popisi so bili vzeti v Triglavskem narodnem parku v Julijskih Alpah v nadmorskih višinah od 1260–1500 m, torej večinoma nad pasom asociacije *Anemono trifoliae-Fagetum* s. lat. na apnencu in dolomitu, kjer so se razvila karbonatna rjava tla, redkeje rendzine. Rastišča asociacije so bolj vlažna kot v asociaciji *Stellario montanae-Fagetum*, kar se zrcali v višji zastopanosti vrst reda *Adenostyletalia* s. lat.

V okviru asociacije smo opisali dve subasociaciji, in sicer ***Aconito paniculati-Fagetum typicum* subass. nova**, ki poraščа toplejša južna, manj strma pobočja na svežih, biološko bolj aktivnih tleh. **Holotip subasociacije je popis številka 18 iz Analitične tabele**.

Druga subasociacija ***Aconito paniculati-Fagetum sorbetosum chamaemespilus*** **subass. nova** je višinska, hladnejša fitocenoza na bolj svežih do vlažnih pa tudi nekoliko zakisanih tleh, kar potrjujejo razlikovalnice subasociacije in številnejše piceetalne vrste. Razlikovalnice so: *Viola biflora*, *Polystichum lonchitis*, *Sorbus chamaemespilus* in *Ribes alpinum*. Naštete vrste so predstavnice subalpinskega pasu. **Holotip subasociacije je popis številka 22 iz Analitične tabele.**

Zaradi povezanosti smo proučili tudi razmerja med podobnimi ali vegetacijsko bližnjimi fitocenozami. Glavnina flore altimontanskih bukovih združb je precej homogena iz vrst razreda *Querco-Fagetea* s. lat. oziroma fagetalne flore in visokih steblik – *Adenostylatelia* s. lat. Asociaciji *Aconito paniculati-Fagetum* je najbolj sorodna asociacija *Stellario-Fagetum*, količnik podobnosti fitocenoz je σs = 78,8 oziroma σj = 65,0, kar je pričakovano. Medsebojno jih ločujejo značilnice in razlikovalnice ter jugovzhodnoevropsko-ilirske na eni strani in jugovzhodnoalpske vrste na drugi strani.

S fitocenozo *Polysticho lonchitis-Fagetum* var. geogr. *Salix waldsteiniana*, ki sta v prostoru sosedi, je podobnost manjša (σs = 64,2 oziroma σj = 47,6) a kaže na njuno različnost. Še manjša je podobnost z geografsko varianto *Ranunculo platanifolii-Fagetum* var. geogr. *typica*, kjer je σs = 51,1 oziroma σj = 34,3, čeprav sta v asociaciji prisotni značilnici asociacije *Ranunculo platanifolii-Fagetum* s. lat., *Ranunculus platanifolius* in *Polystichum lonchitis,* tako kot v večini drugih altimontanskih bukovih gozdovih Slovenije. Najmanjša podobnost je z geografsko varianto *Anemono trifoliae-Fagetum* var. geogr. *Helleborus niger* (σs = 43,3 oziroma σj = 27,7). Primerjave potrjujejo samostojnost asociacije *Aconito paniculati-Fagetum*. Značilnice in razlikovalnice asociacije *Aconito paniculati-Fagetum* s svojo navzočnostjo in pokrovnostjo nakazujejo njene ekološke razmere in njeno samostojnost.

7.5 PROBLEMATIKA ASOCIACIJE *RANUNCULO PLATANIFOLII-FAGETUM* S. LAT. V ZVEZI Z DRUGIMI ALTIMONTANSKIMI BUKOVIMI ZDRUŽBAMI

Delitev meje med altimontansko in spodnjo subalpinsko vegetacijsko stopnjo v Sloveniji še danes povzroča težave. Klasična pasovna delitev srednjevzhodnih Alp H. Mayerja predstavlja mejo za altimontanski pas od 1000/1100 do 1300 m, ta pa se proti jugovzhodu zvišuje zaradi toplejših klimatskih vplivov, ki prihajajo iz Sredozemlja in Panonije. Fitocenoze iz Sintezne tabele vsekakor poraščajo altimontanski pas. Nekatere so prisotne že v spodnjem montanskem pasu (npr. 880 m n. m.) in segajo v spodnji subalpinski pas (npr. nad 1420 m).

Asociacija *Ranunculo platanifolii-Fagetum* je tipična altimontanska bukova združba s slabo izraženimi značilnicami. Marinček & Čarni (2010) navajata za značilnice *Ranunculus platanifolius*, *Polygonatum verticillatum in Adenostyles glabra*. Vse so relativne značilnice, med njimi je edino kolikor toliko sprejemljiva vrsta *Ranunculus platanifolius,* ostali dve *Polygonatum verticillatum* in *Adenostyles glabra,* sta predvsem prisotni v vseh altimontanskih in subalpinskih bukovih združbah Slovenije ilirske zveze *Aremonio-Fagion*. Zato se avtorja (Marinček & Čarni 2010: 21) zatekata k ugotovitvi: "Proti subalpinskim bukovim gozdovom altimontanski sintakson *Ranunculo platanifolii-Fagetum* negativno razlikuje skupina razlikovalnih vrst sintaksona asociacije *Polysticho lonchitis-Fagetum",* v nadaljevanju pa: "Nekatere od naštetih vrst se pojavljajo kot slučajnice tudi na območju asociacije *Ranunculo platanifolii-Fagetum*."

Kodeks o fitocenološki nomenklaturi (Weber et al. 2000) ne dopušča, da bi bilo za asociacijo značilno negativno razlikovanje in še to z relativnimi značilnicami in razlikovalnicami, ki so bolj ali manj prisotne v vseh altimontanskih in subalpinskih bukovih združbah. Od vrst, ki ločujejo asociacije *Polysticho lonchitis-Fagetum* s. lat. od asociacije *Ranunculo platanifolii-Fagetum* s. lat. (Marinček & Čarni 2010: 21), so zaradi višje stopnje navzočnosti v asociaciji *Polysticho lonchitis-Fagetum* s. lat. bolj ali manj sprejemljive le *Salix waldsteiniana*, *Carex ferruginea*, *Viola biflora* in *Allium victorialis* čeprav uspevajo tudi v drugih fitocenozah altimontanskih bukovih gozdov, predvsem v asociaciji *Ranunculo platanifolii-Fagetum* s. lat. (glej Sintezno tabelo).

Verjetno zavedajoč se relativnosti značilnic asociacije *Ranunculo platanifolii-Fagetum* s. lat., avtorja poudarjata različnost rasti bukve v subalpinskih bukovih gozdovih, in sicer: "Pomembna je ugotovitev, da imajo subalpinski bukovi gozdovi zaradi nizke od snega polegle rasti, poseben videz, ki jih fiziognomsko loči od visokoraslih altimontanskih bukovih gozdov." (Marinček & Čarni 2010: 21). Fiziognomski izgled bukovega sestoja ni kategorija Kodeksa fitocenološke nomenklature. Predvsem pa ta ugotovitev ni sprejemljiva, ker gre v obeh fitocenozah za isto vrsto, tj. bukev – *Fagus sylvatica*.

Naslednja ugotovitev, da "altimontanske bukove gozdove razlikujejo od subalpinskih vrste z delnim termofilnim značajem", je šibka ugotovitev. Od navedenih vrst v razpravi Marinčka in Čarnija (2010: 21) ni v tabelah naslednjih: *Tamus communis*, *Acer platanoides*, *Asarum europaeum* in *Hedera helix*. Zelo malo so prisotne vrste *Melittis melisophyllum*, *Polygala chamaebuxus*, *Rhamnus fallax* in *Carex flacca,* zadovoljivo pa vrste

Carex alba, *Erica carnea*, *Lamium orvala*, *Omphalodes verna* in *Primulala vulgaris*. Za vrsti *Carex alba* in *Erica carnea*, ki sta zastopani le v geografski varianti *Ranunculo platanifolii-Fagetum* var. geogr. *typica*, bi lahko rekli, da je vzrok za njuno pojavljanje v geološki podlagi, saj sta vrsti dolomitofilni, kot tudi že prej omenjena vrsta *Polygala chamaebuxus*. Taksona *Lamium orvala* in *Omphalodes verna* pa sta svežoljubni vrsti. Še najbolj "delni termofilni značaj" ima vrsta *Primula vulgaris*, ki je v asociaciji *Ranunculo platanifolii-Fagetum* s. lat. bolj zastopana kot v drugih altimontanskih bukovih gozdovih.

V prid asociaciji *Ranunculo platanifolii-Fagetum* s. lat. avtorja navajata, da so v njej prisotne "nekatere vrste reda *Fagetalia sylvaticae* oziroma razreda *Querco-Fagetea*, z rahlim termofilnim značajem" (Marinček & Čarni 2010: 21). S to ugotovitvijo se strinjamo, vendar v tabelah niso navedene naslednje vrste: *Acer platanoides, Asarum europaeum* in *Hedera helix*. Glede pojavljanja nekaterih ekološko zahtevnejših vrst le v altimontanskih bukovih gozdovih se strinjamo.

V nadaljevanju Marinček & Čarni (2010:22) navajata vrste, ki ločijo geografske variante. Za geografsko varianto *Ranunculo platanifolii-Fagetum* var. geogr. *typica* navajata 22 vrst, različnih ekoloških lastnosti, ki naj bi bile prisotne le v tej geografski varianti. Med temi pa v tabelah ni vrst *Astrantia bavarica* in *Digitalis grandiflora*. V to skupino ni mogoče šteti vrst *Helleborus niger* subsp. *niger, Aposeris foetida*, *Lonicera xylosteum*, *Luzula luzuloides*, *Dryopteris expansa*, *Gymnocarpium dryopteris* in *Hieracium murorum*, ki so navzoče povsod. Nekatere med njimi so komaj zadovoljivo zastopane, npr. *Astantia carniolica*, *Epipactis helleborine*, *Corylus avellana* in *Helleborus odorus*.

Za geografsko varianto *Ranunculo platanifolii*-Fagetum var. geogr. *Calamintha grandiflora* je Marinček (1998: 104) predvidel pet razlikovalnic: *Festuca altissima*, *Calamintha grandiflora*, *Vicia oroboides*, *Allium victorialis* in *Aremonia agrimonioides*. V tabelarnem gradivu (Marinček & Čarni 2010) med razlikovalnicami nista navedeni vrsti *Vicia oroboides* in *Allium victorialis* oziroma le mimogrede v besedilu (Marinček & Čarni 2010: 23). V podkrepitev geografske variante *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* avtorja dodajata še povsod razširjeni vrsti *Lathyrus vernus* in *Cirsium erisithales* in v tabelah neobjavljeno vrsto *Sesleria autumnalis* ter vrsto *Carex pilosa*, ki ima večjo diagnostično težo, vendar je prisotna z manjšo stalnostjo. Vrsti *Aremonia agrimonioides* in *Festuca altissima* sta bolj ali manj razširjeni v vseh bukovih gozdovih, tudi v altimontanskih. Kvalitetna razlikovalnica je le *Calamintha grandiflora*, kar ugotavljata tudi avtorja.

Geografski varianti *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* in *Ranunculo platanifolii-Fagetum* var. geogr. *typica* sta si zelo podobni, kar kažeta tudi količnika (σs = 70,3 oziroma σj = 54,2) in potrjujeta skupno pripadnost makroasociaciji *Ranunculo platanifolii-Fagetum* s. lat.

Sinsistematski položaj geografske variante *Ranunculo platanifolii-Fagetum* var. geogr. *Isopyrum thalictroides* (= *Isopyro-Fagetum* var. *Adenostyles alliariae* Ž. Košir 1979) je v sklopu makroasociacije *Ranunculo platanifolii-Fagetum* s. lat. negotov, kar nam potrjujejo indeksi podobnosti fitocenoz, kjer je σs = 43,7 oziroma σj = 27,9. Podobno razmerje kažejo indeksi v geografski varianti *Ranunculo platanifolii-Fagetum* var. geogr. *typica*, kjer je σs = 43,7 oziroma σj = 31,4, in *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora*, kjer sta indeksa σs = 55,7 oziroma σj =38,6. Marinček & Čarni (2010: 23) navajata, da je geografska varianta *Ranunculo platanifolii-Fagetum* var. geogr. *Isopyrum thalictroides* blizu dinarski geografski varianti: "Glede na edafske razmere je blizu dinarski varianti." Deloma je to res, toda indeksi podobnosti kažejo na samostojno asociacijo, kot je prvotno opisana *Isopyro-Fagetum* var. *Adenostyles alliariae* (Ž. Košir 1979). Iz Sintezne tabele je razvidno, da je od značilnic zadovoljivo zastopana le vrsta *Ranunculus platanifolius*. Nerodna je ugotovitev: "Tako od dinarske kot predalpske geografske variante jo negativno loči popolna odsotnost nekaterih vrst zveze *Aremonio-Fagion*". Na samostojnost asociacije *Isopyro-Fagetum* kaže prisotnost treh njenih značilnic (*Isopyrum thalictoides*, *Corydalis cava*, *Rumex alpestris*) in šestih razlikovalnic (*Scilla bifolia*, *Veratrum album* s. lat., *Adoxa moschatelina*, *Polygonatum verticillatum*, *Chrysosplenium alternifolium* in *Stellaria montana*) (glej Sintezno tabelo, stolpec 7). Vprašanje je, kakšna je diagnostična primernost nekaterih razlikovalnic.

Glede na pojavljanje vrst *Stellaria montana* in *Corydalis cava* v asociaciji *Isopyro-Fagetum* bi lahko pomislili na podobnost z asociacijo *Stellario montanae-Fagetum*, vendar kažeta indeksa podobnosti različnost fitocenoz (σs = 59,4 oziroma σj = 42,3), sta si pa bližje kot vse druge altimontanske bukove združbe. Podobni sta si po standardni floristični sestavi fagetalnih vrst v najširšem smislu, po visokih steblikah in deloma tudi piceetalnih vrstah, tako kot bolj ali manj vse altimontanske bukove združbe zveze *Aremonio-Fagion*. Podobni sta si tudi po ekoloških razmerah. Razlika je očitna v značilnicah in razlikovalnicah asociacij in prisotnosti vrste *Acer pseudoplatanus*, ki izrazito dominira v asociaciji *Stellario montanae-Fagetum*. Vrste *Isopyrum thalictroides, Crocus vernus*, *Leucojum vernum* in *Ranunculus ficaria* (= *Ficaria verna*), ki jih navajata Marinček &

Čarni (2010: 23), ločijo asociacijo *Isopyro-Fagetum* od drugih altimontanskih bukovih gozdov.

Zanimala nas je tudi primerjava med fitocenozama *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* in *Rhododendro hirsuti-Fagetum* var. geogr. *Anemone trifolia* subvar. geogr. *Omphalodes verna*, kjer je σs = 49,7 oziroma σj = 33,0, kot tudi med fitocenozo *Ranunculo platanifolii-Fagetum* var. geogr. *typica*, kjer je σs = 57,8 oziroma σj = 35,1. Indeksi in Sintezna tabela nam nazorno kažejo samostojnost fitocenoz. Sorodstveno bližji sta si fitocenozi *Ranunculo platanifolii-Fagetum* var. geogr. *typica* in *Anemono trifoliae-Fagetum* var. geogr. *Helleborus niger*, kjer je σs = 66,4 oziroma σj = 49,8.

Naslednja sinsistematska problematika, ki nas zanima, je odnos med fitocenozama *Ranunculo platanifolii-Fagetum* s. lat. in *Polysticho lonchitis-Fagetum* s. lat. Obe fitocenozi imata dve oziroma slednja tri (?) geografske variante, dinarsko, predalpsko in tretjo nedorečeno *Polysticho lonchitis-Fagetum* var. geogr. *Anemone trifolia* (?).Marinček & Čarni (2010: 25) navajata **razlikovalnice** asociacije *Polysticho lonchitis-Fagetum* s. lat., in sicer splošno razširjeno vrsto v altimontanskih in subalpinskih bukovih združbah *Polystichum lonchitis*, nato vrsti *Carex ferruginea* in *Rhododendron hirsutum*, ki sta številnejši v asociaciji *Rhododendro hirsuti-Fagetum*, ter *Pinus mugo* z enakovredno navzočnostjo. Vrste *Salix appendiculuta*, *Sorbus chamaemespilus* in *Lonicera caerulea* so v fitocenozi *Polysticho lonchitis-Fagetum* s. lat. skromno zastopane oziroma zadnjih dveh celo ni v geografski varianti *Polysticho lonchitis-Fagetum* var. geogr. *Salix waldsteiniana* (glej Sintezno tabelo).

Izbira dveh subalpinskih vrst *Salix waldsteiniana* in *S. glabra* za razlikovalnici geografske variante *Polysticho lonchitis-Fagetum* var. geogr. *Salix waldsteiniana* je smiselna, vendar je vrsta *Salix glabra* z enako stopnjo navzočnosti prisotna v asociaciji *Rhododendro hirsuti-Fagetum* (glej Sintezno tabelo).

Za geografsko varianto *Polysticho lonchitis-Fagetum* var. geogr. *Allium victorialis* sta razlikovalnici *Allium victorialis*, ki je alpsko-altajska vrsta in je pri nas naseljena v alpskem svetu (Julijske Alpe, Karavanke, Savinjske Alpe), zaradi ekoloških razmer (snežni zameti, dolgotrajna zasneženost) pa še v visokogorju Snežnika, Trnovskega gozda in na Kočevskem, ter vrsta *Calamintha grandiflora*, ki je jugovzhodnoevropsko-ilirska vrsta, splošno razširjena pri nas v dinarskem in preddinarskem fitogeografskem območju. Ne glede na fitogeografsko pripadnost je razlikovalnica *Allium victorialis* dobro izbrana. To pa ne moremo trditi za širšo razlikovalno skupino, v kateri sta skromno zastopani vrsti *Euphorbia carniolica* in *Lamium orvala*. Marinček & Čarni (2010: 26) nadalje ugotavljata, da "ugodne ekološke razmere nakazuje kopica ekološko zahtevnejših taksonov, kot so: *Adoxa moschatelina*, *Arum maculatum*, *Ranunculus lanuginosus*, *Carex pilosa*, *Euphorbia amygdaloides*, *Lathyrus vernus*, *Cardamine bulbifera*, *Prenanthes purpurea* in še nekatere." Ta ekološka določitev drži, vendar je večina naštetih vrst zastopana tudi v drugih subalpinskih in altimontanskih bukovih gozdovih, kar ni nič posebnega. Med temi vrstami je izjema le vrsta *Lathyrus vernus*, ki odločno prevladuje v fitocenozi *Polysticho lonchitis-Fagetum* var. geogr. *Allium victorialis*.

Geografska varianta *Polysticho lonchitis-Fagetum* var. geogr. *Anemone trifolia* (?) (Poldini & Nardini 1993: 248–255) je predstavljena s petimi popisi. Fitocenoza je glede na druge geografske variante floristično revna in je vmes med fitocenozami *Ranunculo platanifolii-Fagetum* s. lat., *Polysticho lonchitis-Fagetum* s. lat. in *Anemono trifoliae-Fagetum* s. lat. Lahko bi rekli, da je precej nedorečena, zato je nismo uvrstili v Sintezno tabelo.

Za fitocenozo *Polysticho lonchitis-Fagetum* s. lat. Marinček & Čarni (2010: 25) ponovno navajata, da "prevladujejo pretežno čisti, od snega polegli nizki bukovi sestoji s posamično primesjo belega javora, smreke in jelke." To pa sta že predhodno objavila, da naj bi bil fiziognomski videz bukve verjetno pomemben dejavnik pri presoji avtonomne asociacije (Marinček & Čarni 2010: 21).

Iz Sintezne tabele je razvidno, da sta si floristični sestavi altimontanskih in subalpinskih bukovih gozdov precej podobni oziroma enotni. Včasih so floristične razlike minimalne in dobrih značilnic in razlikovalnic za posamezne fitocenoze ni, čeprav so lahko njihove ekološke razmere ter fenološki razvoj in oblika drevesnih vrst različni. Taka asociacija je *Ranunculo platanifolii-Fagetum* s. lat., ki ima uravnotežene ekološke razmere v visokogorju in zato ni pretiranih razlik med floro altimontanskih in subalpinskih bukovih gozdov, zlasti s fitocenozo *Polysticho lonchitis-Fagetum* s. lat. Količniki podobnosti fitocenoz med tema fitocenozama so glede na geografske variante naslednji: med *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* in *Polysticho lonchitis-Fagetum* var. geogr. *Allium victorialis* je σs = 75,0 oziroma σj = 60,0, med *Ranunculo platanifolii-Fagetum* var. geogr. *typica* in *Polysticho lonchitis-Fagetum* var. geogr. *Salix waldsteiniana* je σs = 63,5 oziroma σj = 46,6. Količniki potrjujejo veliko medsebojno podobnost omenjenih fitocenoz, zlasti če te primerjamo s podobnostjo med geografskima variantama *Polysticho lonchitis-Fagetum* var. geogr. *Allium victorialis* in *Polysticho lonchitis-Fagetum* var. geogr. *Salix waldsteiniana*, kjer sta σs = 71,0 oziroma σj = 55,0, ali pa med geografskima variantama *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* in *Ranunculo*

platanifolii-Fagetum var. geogr. *typica*, kjer je σs = 70,3 oziroma σj = 54,2. Vprašanje je združitev asociacij *Ranunculo platanifolii-Fagetum* s. lat. in *Polysticho lonchitis-Fagetum* s. lat. v enotno asociacijo z dvema geografskima variantama in dvema višinskima variantama. Čeprav je asociacija *Ranunculo platanifolii-Fagetum* s. lat. slabo določljiva s sedanjimi značilnicami, bi z določenimi popravki in dopolnitvijo razlikovalnic obdržali asociacijo *Ranunculo platanifolii-Fagetum* s. lat., v njo pa vključili fitocenozo *Polysticho lonchitis-Fagetum* s. lat. z dvema višinskima variantama. Smiselno bi bilo obdržati asociacijo *Ranunculo platanifolii-Fagetum* s. lat. tako, da ji določimo nove značilnice in razlikovalnice. Njeni bukovi sestoji so gospodarsko zanimivi in poleg asociacije *Anemono trifoliae-Fagetum* s. lat. pokrivajo precejšnje površine. Zanimiva in bolj ali manj vprašljiva je odločitev avstrijskih fitocenologov Willner & Grabherr (2007: 157-158), ki sta združila asociaciji *Ranunculo platanifolii-Fagetum* in *Polysticho lonchitis-Fagetum* z asociacijami *Aconito paniculati-Fagetum* in *Isopyro-Fagetum* var. *Adenostyles alliariae* v altimontansko bukovo asociacijo *Saxifrago rotundifolii-Fagetum*.

Za prenovljeno asociacijo *Ranunculo platanifolii--Fagetum* s. lat. bi bile značilnice *Luzula sylvatica* subsp. *sylvatica*, *Ranunculus platanifolius* in *Polystichum lonchitis*. Odpadli bi splošno razširjeni in številčni vrsti v tem območju *Polygonatum verticillatum* in *Adenostyles glabra* (glej Sintezno tabelo). Bolj prepričljive so razlikovalnice asociacije, in sicer *Aremonia agrimonioides*, *Veratrum album* subps. *album*, *Geleobdolon flavidum*, *Hacquetia epipactis* in *Anthriscus nitida*. To so ekološko zahtevnejše vrste, ki poudarjajo določeno produktivnost in svežost rastišča (glej Sintezno tabelo).

Za geografsko varianto *Ranunculo platanifolii-Fagetum* var. geogr. *Calamintha grandiflora* sta razlikovalnici *Calamintha grandiflora* in *Carex pilosa*. V sklopu te geografske variante bi bila višinska varianta *Ranunculo platanifolii-Fagetum* var. alt. *Allium victorialis*.

Za geografsko varianto *Ranunculo platanifolii-Fagetum* var. geogr. *typica* sta razlilkovalnici *Primula vulgaris* in *Polygonatum multiflorum*. Naslednja višinska varianta bi bila *Ranunculo platanifolii-Fagetum* var. alt. *Salix waldsteiniana* (glej Sintezno tabelo). Po tej določitvi bi bila podobnost med geografskima in višinskima variantama σs = 71,5 oziroma σj = 55,7 (glej tabelo, primerjaj stolpec 7), kar potrjuje smiselnost združitve asociacij *Ranunculo platanifolii-Fagetum* s. lat. in *Polysticho lonchitis-Fagetum* s. lat. Oblika rasti ene vrste, v našem primeru bukve, s teoretičnega vidika ne igra nobene vloge, s stališča praktičnega gozdarstva pa to poudarjamo z višinskima variantama. Fitocenozi bi kljub podobnosti lahko delili le tedaj, če bi imeli na voljo drugo številčno dovolj močno kodominantno drevesno vrsto, ki bi poudarjala bolj ali manj določene ekološke razmere.

Medsebojno smo primerjali še druge altimontanske in subalpinske bukove združbe, kar je razvidno iz Sintezne tabele in Tabele primerjav podobnosti altimontanskih in subalpinskih bukovih združb Slovenije ilirske zveze *Aremonio-Fagion* po Sørensenovi in Jaccardu. Količniki v glavnem potrjujejo samostojnost asociacij in v nekaterih primerih bližnjo ali daljno sorodnost (glej Tabelo primerjav).

Primerjane fitocenoze	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Sørensen	70,3	55,7	47,8	43,7	75,0	63,5	71,5	86,8	59,4	58,9	51,1	49,7	57,8	66,4	59,5	34,5	78,8	64,2	43,3	71,0	42,6	51,6	69,4	62,3	58,0	48,0
Jaccard	54,2	38,6	31,4	27,9	60,0	46,6	55,7	50,3	42,3	41,7	34,3	33,0	35,1	49,8	42,4	22,0	65,0	47,6	27,7	55,0	27,1	34,8	53,2	45,3	40,8	31,5

1 *Ranunculo-Fagetum v. g. Calamintha grandiflora: Ranunculo-Fagetum v. g. typica*
2 *Ranuculo-Fagetum v. g. Calamintha grandiflora: Ranunculo-Fagetum* v. g. *Isopyrum thalictroides*
3 *Ranunculo-Fagetum v. g. Calamintha grandiflora: Ranunculo-Fagetum* v. g. *Isopyrum thalictroides*
4 *Ranunculo-Fagetum s. lat.: Ranunculo-Fagetum v. g. Isopyrum thalictroides*
5 *Ranunculo-Fagetum v. g. Calamintha grandiflora: Polysticho-Fagetum v. g. Allium victorialis*
6 *Ranunculo-Fagetum v. g. typica: Polysticho-Fagetum v. g. Salix waldsteiniana*
7 *Ranunculo-Fagetum v. g. Calamintha grandiflora & Polysticho-Fagetum v. g. Allium victorialis: Ranunculo-Fagetum v. g. typica & Polysticho-Fagetum v. g. Salix waldsteiniana*
8 *Ranunculo-Fagetum v. g. Calamintha grandiflora: Stellario-Fagetum*
9 *Ranunculo-Fagetum v. g. Isopyrum thalictroides: Stellario-Fagetum*
10 *Ranunculo-Fagetum s. lat. & Polysticho-Fagetum s. lat.: Stellario-Fagetum*
11 *Ranunculo-Fagetum v. g. typica: Aconito-Fagetum*
12 *Ranunculo-Fagetum v. g. Calamintha grandiflora: Rhododendro-Fagetum v. g. Anemone trifolia* sv. g. *Omphalodes verna*
13 *Ranunculo-Fagetum v. g. typica: Rhododendro-Fagetum v. g. Anemone trifolia* sv. g. *Omphalodes verna*
14 *Ranunculo-Fagetum v. g. typica: Anemono-Fagetum* v. g. *Helleborus niger*

15 *Stellario-Fagetum: Polysticho-Fagetum* v. g. *Allium victorialis*
16 *Stellario-Fagetum: Rhododendro-Fagetum* v. g. *Anemone trifolia* sv. g. *Omphalodes verna*
17 *Stellario-Fagetum: Aconito-Fagetum*
18 *Aconito-Fagetum: Polysticho-Fagetum* v. g. *Salix waldsteiniana*
19 *Aconito-Fagetum: Anemono-Fagetum* v. g. *Helleborus niger*
20 *Polysticho-Fagetum v. g. Allium victorialis: Polysticho-Fagetum* v. g. *Salix waldsteiniana*
21 *Polysticho-Fagetum v. g. Allium victorialis: Rhododendro-Fagetum* v. g. *Anemone trifolia sv. g. Omphalodes verna*
22 *Anemono-Fagetum v. g. Helleborus niger: Polysticho-Fagetum* v. g. *Salix waldsteiniana*
23 *Cardamine-Fagetum var. Abies alba (= Aceri-Fagetum pohoricum): Cardamine-Fagetum* var. *Abies alba (= Savensi-Fagetum* var. *Abies alba)*
24 *Cardamine-Fagetum: Cardamine-Fagetum var. Abies alba*
25 *Stellario-Fagetum: Ranunculo-Fagetum v. g. Isopyrum thalictroides*
26 *Aconito-Fagetum: Ranunculo-Fagetum v. g. Isopyrum thalictroides*

Statistična preglednica primerjav med altimontanskim bukovjem Slovenije po Sørensenovi in Jaccardu.

7.6 RAZPRAVA Z ZAKLJUČKI

Razprava Marinčka & Čarnija (2010) v glavnem prinaša zabeležko številnih popisov (199) altimontanske fitocenoze *Ranunculo platanifolii-Fagetum* s. lat., kratek opis nekaterih drugih altimontanskih fitocenoz, ki so ali naj bi bile v Sloveniji. "Med drugim je namen predstaviti bogato členitev podzveze *Saxifrago-Fagenion*." (Marinček & Čarni 2010: 4). Pogrešamo utemeljeno predstavitev njunih rezultatov oziroma zaključkov o pojavljanju in odnosih med fitocenozami altimontanskih in subalpinskih bukovih združb Slovenije ilirske zveze *Aremonio-Fagion*, ki bi jih najbolj verodostojno predstavila sintezna tabela, morda s podporo katerih od računalniških metod. Npr., mimogrede je v primeru asociacije *Stellario montanae-Fagetum* omenjeno, da so "fitocenološke raziskave pokazale." To pomanjkljivost smo želeli dopolniti z našo razpravo s primerjanji najbolj aktualnih altimontanskih in subalpinskih bukovih združb Slovenije ilirske zveze *Aremonio-Fagion*. Položaj in odnos med njimi nazorno kaže Sintezna tabela, na osnovi katere smo zapisali in utemeljili naše pripombe.

Glede statistično-računalniških metod smo mnenja, da so nam lahko v pomoč, vendar ne brez kritične presoje, ki je posebno potrebna pri obravnavi tako floristično in ekološko občutljivih fitocenozah altimontansko-subalpinskega bukovja. Količniki podobosti imajo relativno vrednost, odločilna je raziskovalčeva diagnoza na floristični in deloma ekološki osnovi v kolikor nam je dobro poznana.

Sinsistematski položaj obravnavanih altimontanskih bukovih gozdov v Sloveniji je otežen zaradi nekaterih izenačenih ekoloških razmer, kot so karbonatna podlaga, mezoklima in relief. Ti pogojujejo skladen razvoj fagetalnega, deloma piceetalnega rastlinstva in rastlinstva visokih steblik, ki imajo odločilno vlogo v teh bukovih gozdovih. Zato je vsebina flore v teh fitocenozah zelo izenačena. Razlike so v talni plasti in v zelo redko zaznavnih mikroklimatskih pojavih. Na to opozarjata že Marinček & Čarni (2010: 23), ko v primeru posameznih geografskih variant asociacije *Ranunculo platanifolii-Fagetum* s. lat. zapišeta, "da kljub evidentnim ekološkim posebnostim geografskih variant se te ne odražajo v pričakovani meri v vegetacijski odeji." Tako je položaj asociacije *Ranunculo platanifolii-Fagetum* s. lat. s svojimi geografskimi variantami precej zapleten v primerjavi z drugimi altimontanskimi in nekaterimi subalpinskimi bukovimi združbami na karbonatni podlagi.

Ne glede na izenačenost vegetacijske odeje altimontanskih bukovih združb na karbonatih obstoj asociacije *Ranunculo platanifolii-Fagetum* s. lat. sprejemamo, s popravkom njenih značilnic in dodatkom razlikovalnic, ki bolj utrjujejo njen sinsistematski položaj v krogu karbonatnih altimontanskih bukovih združb ilirske zveze *Aremonio-Fagion*. Pri tem moramo, prvič, poudariti samostojnost asociacij *Stellario montanae-Fagetum*, *Aconito paniculati-Fagetum* in *Isopyro-Fagetum* (*Isopyro-Fagetum* var. *Adenostyles alliariae*) in, drugič, pridružiti fitocenozo *Polysticho lonchitis-Fagetum* s. lat. z njunima "geografskima variantama" asociaciji *Ranunculo platanifolii-Fagetum* s. lat. Določitev variant z alpsko-altajsko vrsto *Allium victorialis* in severnoalpsko-arktično vrsto *Salix waldsteiniana* je primernejša za višinsko varianto, če se zgledujemo po W. & A. Matuszkiewicz (1981). Tako bi imela asociacija *Ranunculo platanifolii-Fagetum* s. lat. dve geografski in dve višinski varianti. Floristična sestava fitocenoz *Ranunculo platanifolii-Fagetum* s. lat. in *Polysticho lonchitis-Fagetum* s. lat. je zelo izenačena in zadovoljivo ju ločita le vrsti *Carex ferruginea* in *Rhododendron hirsutum*, ki pa sta bolj zastopani v asociaciji *Rhododendro hirsuti-Fagetum*, ter vrsta

Pinus mugo, z enako prisotnostjo v obeh asociacijah. Vrsta *Polystichum lonchitis* pa je razširjena povsod v altimontanskih in subalpinskih bukovih združbah. Tako razumljena asociacija *Ranunculo platanifolii-Fagetum* s. lat. s svojima geografskima variantama z vrsto *Calamintha grandiflora* in tipično, ter višinskima variantama z vrstama *Allium victorialis* in *Salix waldsteiniana,* je sprejemljiva. Predlagana rešitev omogoča razumevanje asociacije *Ranunculo platanifolii-Fagetum* s. lat., sicer moramo, glede na Kodeks, geografski varianti *Ranunculo platanifolii-Fagetum* s. lat. vključiti v predhodni (Zupančič 1967, 1969, Marinček et al. 1993), prvo objavljeni asociaciji *Stellario montanae-Fagetum* in *Aconito paniculati-Fagetum*, kar pa ne bi bilo popolnoma smiselno.

S petimi fitocenološkimi popisi predstavljena geografska varianta *Polysticho lonchitis-Fagetum* var. geogr. *Anemone trifolia* (?) (Poldini & Nardini 1993) je nejasna, floristično revna in bolj podobna revnejši obliki asociacije oziroma geografski varianti *Anemono trifoliae-Fagetum* var. geogr. *Luzula nivea*. Skratka, tabela predstavlja netipično obliko te ali one fitocenoze, po našem mnenju najmanj fitocenozo *Polysticho lonchitis-Fagetum* s. lat. Zaradi nedorečenosti, predvsem mozaičnosti popisov, je nismo uvrstili v Sintezno tabelo. Nerazumljivo je, da jo je Marinček sprejel za reprezentačno in prvo objavljeno. Po našem mnenju velja za prvo objavo višinske variante *Ranunculo platanifolii-Fagetum* var. alt. *Salix waldsteiniana* (= *Polysticho lonchitis-Fagetum* var. geogr. *Salix waldsteiniana*) tabela z desetimi popisi v članku Subalpsko bukovje Škofjeloškega hribovja (Marinček 1985: 186–189). Ta publikacija v literaturi razprave Marinčka & Čarnija (2010) ni navedena.

V Sintezno tabelo smo za primerjavo altimontanskih bukovih združb ilirske zveze *Aremonio-Fagion* vključili asociacijo oziroma geografsko varianto *Anemono trifoliae-Fagetum* var. geogr. *Helleborus niger* z dvema tabelama, ki najboljše predstavljata to altimontansko asociacijo (Marinček et al. 1989: tabeli 1 in 2). Ob tem smo določili naslednje značilnice: *Carex alba*, *Vaccinium myrtillus*, *V. vitis-idaea*, *Picea abies* in *Larix decidua*. Sintezna tabela je pokazala, da se te vrste v veliki meri pojavljajo tudi v drugih altimontanskih bukovih združbah. Nekoliko manj sta v drugih altimontanskih bukovih združbah prisotni vrsti *Picea abies* in *Larix decidua*, ki po srednji pokrovni vrednosti in stopnji stalnosti izstopata v asociaciji *Anemono trifoliae-Fagetum* s. lat., zato smo ju prevrednotili v razlikovalnici. Druge značilnice smo opustili in namesto njih izbrali vrsti *Polygala chamaebuxus* in *Orthilia secunda*. Obe vrsti uspevata na zmerno zakisanem ali nevtralnem rastišču na peščenih tleh. Vrsta *Polygala chamaebuxus* pa je še kazalka dolomitne oziroma dolomitizirane apnenčeve podlage, kar je značilno za asociacijo *Anemono trifoliae-Fagetum* s. lat.

V publikaciji Zupančiča (1969) smo predstavili še tretjo geografsko varianto z osmimi popisi *Aceri-Fagetum pohoricum* iz vrst altimontanskih bukovih združb, ki pa je ne moremo uvrstiti v ilirsko, temveč v srednjeevropsko florno provinco. O njej kasneje nismo več razpravljali. Zdelo se nam je vredno, da v Sintezno tabelo vključimo še to fitocenozo in podobno fitocenozo Ž. Koširja (1979: 105–150) *Savensi-Fagetum* var. *Abies alba* (= var. *silicicolum*) na Pohorju. Ti dve fitocenozi uvrščamo v altimontanske bukove združbe s kodominantno vrsto *Acer pseudoplatanus*. Rezultat primerjave je pokazal istovetnost fitocenoz *Aceri-Fagetum pohoricum* in *Savensi-Fagetum* var. *Abies alba* (= var. *silicicolum*). Po Kodeksu o fitocenološki nomenklaturi asociacijo validno označujemo kot *Cardamine waldsteinii-Fagetum* Ž. Košir 1962 var. *Abies alba* (Zupančič 1969) Ž. Košir 1979 (prvotno invalidno ime je *Aceri-Fagetum pohoricum*). Značilnice asociacije so vrste *Cardamine waldsteinii* (= *Cardamine savensis* = *Dentaria savensis*), *Milium effusum* in *Luzula pilosa*, razlikovalnici pa vrsti *Abies alba* in *Acer pseudoplatanus*. Značilnice in razlikovalnica *Abies alba* izrazito ločijo fitocenozo *Cardamine waldsteinii-Fagetum* var. *Abies alba* od drugega altimontanskega bukovja. Razlikovalnica *Acer pseudoplatanus* je sograditeljica združbe zaradi njenega številnega pojavljanja. Značilnice in razlikovalnici ekološko določajo fitocenozo za sveželjubno, zmerno kislo na nevtralnem do zmerno kislem rastišču.

Altimontanske in subalpinske bukove združbe ilirske florne province uvrščamo v ilirsko zvezo bukovih gozdov *Aremonio-Fagion*. Soglašamo z Marinčkom & Čarnijem (2010: 3), da je bila leta 1993 z nomenklaturno revizijo zveza določena z bolj ali manj zanesljivimi dvanajstimi jugovzhodnoevropsko-ilirskimi vrstami oziroma njenimi značilnicami (Marinček et al. 1993). V zvezo *Aremonio-Fagion* moramo šteti še jugovzhodnoevropsko-ilirske vrste, ki so porazdeljene v submontanski in montanski podzvezi, te so: *Hacquetia epipactis*, *Knautia drymeia* subsp. *drymeia*, *Cardamine kitaibeliana*, *C. waldsteinii*, *Lamium orvala*, *Scopolia carniolica*, *Ruscus hypoglossum*, *Geranium nodosum*. Prisotne so lahko še druge jugovzhodnoevropsko-ilirske vrste, ki pa so značilne za druge sinsistematske enote (npr. *Homogyne sylvestris*, *Aposeris foetida* idr.). Razdelitev zveze *Aremonio-Fagion* v štiri podzveze pa je bila tvegana. Med temi je najbolj določena z lastnimi štirimi jugovzhodnoevropsko-ilirskimi vrstami montanska zveza *Lamio orvalae-Fagenion*, druge so ohlapne, med njimi je najslabše definirana altimontansko-subalpinska podzveza *Saxifrago rotundifoliae-Fagenion* z eno samo jugo-

vzhodnoevropsko-ilirsko vrsto *Homogyne sylvestris*, ki pa pripada redu *Vaccinio-Piceetalia*, vse druge so srednjeevropske vrste. Willner & Grabherr (2007: 157–158) uvrščata podzvezo *Saxifrago-Fagenion* v podzvezo *Lonicero alpigenae-Fagenion*, ki združuje alpsko-dinarsko bukovje in smrekovo-jelovo bukovje na karbonatih. O naših pomislekih glede ilirskih podzvez je bila objavljena razprava (Zupančič 2003). Omenjene vrste, ki jih nekateri imenujejo "ilirske" ali "ilirikoidne", zasedajo širša območja od ilirske province ali pa so pri nas le v disjunktih, zato smo jih označili kot jugovzhodnoevropsko-ilirske vrste. (Prave) ilirske vrste so v negozdnih habitatih.

Podzveza *Saxifrago rotundifoliae-Fagenion* je nastala ob reviziji asociacije *Anemono trifoliae-Fagetum* (Marinček et al. 1989: 34–37 in 57–58) pod vplivom madžarskega fitocenologa Borhidija, ki je bolj ali manj uspešno objavil submontansko-montanske ilirske bukove podzveze v letih od 1963 do 1966. Brez dvoma pa je neuspešna naša predstavitev podzveze *Saxifrago rotundifoliae-Fagenion*. S podzvezami, zlasti s podzvezo *Saxifrago rotundifoliae-Fagenion,* ustvarjamo nezaželene kritike o obstoju ilirske zveze bukovih združb *Aremonio-Fagion*. S tako podzvezo, ki ima razlikovalnice samo iz srednjeevropskih vrst in nima niti svojih značilnic, ustvarjamo pri kritikih pomisleke, da je tudi za našo ilirsko florno provinco dovolj srednjeevropska zveza *Fagion sylvaticae*, ali morda, pri strpnejših evropskih fitocenologih, kot podzveza, npr. *Aremonio-Fagenion*. Tako že pri Willnerju & Grabherrju (2007: 144–148) zasledimo, da ilirsko zvezo *Aremonio-Fagion* vključujeta v srednjeevropsko zvezo *Fagion sylvaticae*, ki zajema evropska bukovja in smrekovo-jelova-bukovja. Zavedati se moramo, da s srednjeevropskimi vrstami predstavljena podzveza *Saxifrago rotundifoliae-Fagenion* tudi ali predvsem velja za srednjeevropsko zvezo bukovih gozdov *Fagion sylvaticae*. Težave so tudi z nekaterimi jugovzhodnoevropsko-ilirskimi vrstami iz zveze *Aremonio-Fagion*, s široko razširjenostjo prek ilirske florne province in so le relativne značilnice ali razlikovalnice zveze, npr. *Cardamine enneaphyllos*, *Knautia drymeia* subsp. *drymeia*, *Cyclamen purpurascens*, *Helleborus niger* subsp. *niger*, *Euphorbia carniolica*, *Anemone trifolia*, *Calamintha grandiflora*, *Hacquetia epipactis*, *Festuca drymeia* idr. Nekateri avtorji pa v jugovzhodnoevropsko-ilirske vrste vztrajno uvrščajo vrste, ki to niso, npr. *Primula vulgaris*, *Astrantia carniolica*, *Lonicera caprifolium*, *Fraxinus ornus*, *Ostrya carpinifolia* idr. Modro bi bilo, da s fitogeografsko ustreznimi jugovzhodnoevropsko-ilirskimi vrstami utrdimo zvezo *Aremonio-Fagion* in izločimo neustrezne srednjeevropske vrste za značilnice ali razlikovalnice "ilirskih" podzvez.

S to razpravo, podkrepljeno s sintezno in analitično tabelo, smo skušali pojasniti pojavljanje altimontanskih in subalpinskih bukovih gozdov na karbonatni podlagi ilirske florne province (*Aremonio-Fagion*) ter njihov sinsistematski položaj in sintaksonomsko ureditev posameznih fitocenoz na osnovi njihovih značilnic in razlikovalnic ter se izogniti pavšalni trditvi "fitocenološke raziskave so pokazale".

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PHYTOCOENOLOGICAL TABLE (Fitocenološka tabela) 1: ACERI-FAGETUM s. lat.

Sinsistematical characteristic (Sinsistematska pripadnost)																															
Number of relevé (Zaporedna številka popisa)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Altitude in m (Nadmorska višina v m)	1250	1360	1420	1170	1210	1270	1300	1220	1280	1090	1220	1420	1380	1200	1320	1410	1260	1400	1280	1450	1400	1500	1500	1430	1240	1280	1340	1320	1400	1420	1430	1380
Aspect (Nebesna lega)	S	-	SE	W-SW	NE	W	-	N-NW	-	W	S-SW	SE	N	NE-E	N	SW	SE	S	S-SW	SE	SE-S	E-NE	NE-E	NE-E-SE	SE	N-NE	NE-E	NE-E	N-NE	N	W	N-NW
Slope in degrees (Nagib v stopinjah)	0-30	- 25	20	35	25-30	20-25	0-3	20-30	0	0-20	20-25	20	25-30	10-20	25-30	15-25	35-40	25	20-30	20-30	30-40	35-45	10-25	30-40	5-15	5-10	15-20	20-25	10-15	15-20	10-15	12-15
Bedrock (Geološka podlaga)	limestone, dolomite, dolomitized limestone (apnenec, dolomit, dolomitizirani apnenec)																			limestone, dolomite, dolomitized limestone (apnenec, dolomit, dolomitizirani apnenec)					metamorphic, igneous rocks (metamorfne, magmatske kamnine)								
Stoniness in % (Kamnitost v %)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cover (Pokrovnost) %: Tree layer (Drevesna pl.) I	80-90	80-90	80-90	80	90	80-90	80-90	90-100	70-80	80-90	100	90	70-80	90-100	90	90	40-50	60-70	100	90-100	70-90	70	40-50	80-90	80-90	90	90-100	70-80	90-100	60-70	100	90-100
Shrub layer (Grmovna plast) II	0	10	40	0	10	10	30	0	5	0	0	20	30	10	10	20	20	40	20	30	30	50	40	30	40	0	5	0	10	10	0	0
Herb layer (Zeliščna plast) III	90-100	85	40-50	40	40	60	80-90	60	80	80	60	50	70-80	90	60-70	60	90	90	50-60	30	90	60-70	80-90	90	80-90	90	30	95	80	100	70-80	90
Moss layer (Mahovna plast) IV	0	10	20	30	10	20	30	30	2	10	15	10	30	10	10	20	3	3	5	20	10	10	10	10	0	0	0	0	0	5	0	5
Relevé (Velikost popisne ploskve) m2	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Country (Država)	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia	Slovenia
Location (Kraj popisov)	Blegoš Javorska dolina	Trnovski gozd Praprot	Trnovski gozd Smrekov vrh	Kočevsko Debeli vrh	Idrijsko Javorniki	Trnovski gozd Mali in Veliki Modrasovec	Trnovski gozd Praprot	Trnovski gozd Nemški hrib	Trnovski gozd Trnovo	Trnovski gozd	Trnovski gozd Pod Iztokovo kočo	Trnovski gozd Hribarjev vrh	Trnovski gozd Smrekov vrh	Trnovski gozd Poslušanje	Trnovski gozd Smrekov vrh	Trnovski gozd Hribarjev vrh	TNP (Triglavski narodni park) Komarča	TNP Spodnja Komna	TNP Pekel pod Komno	TNP Spodnja Komna	TNP Spodnja Komna	TNP Spodnja Komna	TNP Spodnja Komna	TNP (Triglavski narodni park) Komna	Pohorje Hudi Vrh	Pohorje Klopni vrh	Pohorje Konjiška planina	Pohorje Črni vrh	Pohorje Črni vrh	Pohorje Črni vrh	Pohorje Mala Kopa	Pohorje Mala Kopa

	Association (asociacija)		STELLARIO - FAGETUM																		ACONITO - FAGETUM								CARDAMINE - FAGETUM var. geogr. ABIES ALBA								Presence (Prezenca) 1-32	Presence (Prezenca) 1-16	Presence (Prezenca) 17-24	Presence (Prezenca) 25-32
	Subassociation (Subasociacija)/ Stand (Stadij)		TYPICUM								ADENOSTYLETOSUM ALLIARIAE										TYPICUM					SORBETOSUM			TYPICUM	DORONICETOSUM											
	STELLARIO-FAGETUM (Zupančič 1969) Marinček et al. 1992																																							
	CHARACTERISTIC SPECIES (Značilnice)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
F_2	Polystichum aculeatum	III	.	+	1.1	+	1.2	+	.	+	.	1.1	+	+	1.1	+	1.2	+.2	+	.	+	.	.	.	+	+	.	.	.	.	.	.	.	.	17	13	4	-
F_2	Stellaria montana		1.2	+	+	.	.	+.2	2.2	2.3	2.2	2.2	1.2	.	1.2	2.2	2.2	1.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	13	-	-	-
F_2	Cardamine pentaphyllos		+	.	.	.	2.2	.	.	.	.	.	.	.	.	.	(+.2)	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	4	-	
	DIFERENTIAL SPECIES (Razlikovalnice)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
		I	4.1	2.1	1.1	3.1	+	1.1	2.1	3.1	3.1	2.1	3.1	2.1	2.1	4.1	2.1	2.1	3.1	3.2	3.1	5.2	3.1	2.2	3.2	5.1	2.1	1.1	+	3.1	2.1	+	2.1	1.1	32	16	8	8
F_2	Acer pseudoplatanus	II	.	1.1	1.1	.	+	+	+	.	+.2	.	+	+	1.1	1.1	+	1.2	1.2	2.2	+	1.1	2.2	2.2	.	2.2	3.3	.	.	.	.	+	.	+	22	32	12	16	7	8	3	8
		III	.	1.1	.	.	.	1.2	.	.	.	+	1.1	.	.	1.1	.	.	.	.	.	.	.	.	.	.	+	+	+	1.1	+	1.1	+	.	12	5	-	7				
F_2	Scrophularia nodosa		+	1.1	+	+	+	+	+	.	+	+	+	+	+	+.2	.	+	.	.	+	+	+	.	.	+	.	.	.	+	.	.	+	+	21	14	4	3				
F_2	Corydalis cava		.	.	.	.	.	.	.	.	.	.	1.2	1.2	.	.	1.2	2.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	-	-	-				
	STELLARIO-FAGETUM ADENOSTYLETOSUM ALLIARIAE subas. nova																																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
A_3	Doronicum austriacum	III	.	.	.	+	.	.	.	.	.	+.2	.	+	1.1	.	+	+.2	.	1.2	1.2	1.1	2.2	+.2	2.2	2.2	.	+	+0.	1.1	1.2	+	+	2.2	20	6	7	7
F_2	Adoxa moschatellina		.	.	.	.	1.1	.	.	.	.	+	1.2	+.2	.	1.2	+.2	+.2	+	.	.	+	+	.	+.2	+.2	.	.	+	1.2	+.2	+	+.2	+.2	18	7	5	6
A_3	Adenostyles alliariae		.	.	.	.	.	.	.	.	2.2	.	(+.2)	+	2.2	+	3.2	+.2	.	.	+	+.2	+	.	2.2	2.2	.	.	+0.	.	.	+	+0.	3.3	16	7	5	4
A_3	Cicerbita alpina		.	.	.	.	.	.	.	.	.	.	.	+	+	+.2	1.2	+.2	+.2	.	2.2	1.2	+	+.2	.	3.3	.	+0.	.	.	+0.	1.2	2.1	1.1	16	5	6	5
A_3	Myosotis sylvatica		.	.	.	.	.	+.2	+.2	+.2	1.2	+.2	+.2	.	+.2	1.2	.	+	1.2	+.2	+.2	.	1.2	.	+.2	+.2	.	.	.	.	.	.	.	.	15	9	6	-
	ACONITO PANICULATAE-FAGETUM (Zupančič 1969) Marinček et al. 1992																																							
	CHARACTERISTIC SPECIES (Značilnice)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
A_3	Rumex alpestris (=R. arifolius)		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	(+)	.	1.1	+.2	.	1.2	+0.	+	1.1	.	.	.	.	+	+	.	+	10	1	6	3
A_3	Crepis paludosa		.	.	.	.	.	.	.	.	.	.	.	.	+	.	(+.2)	.	.	+	+	1.1	+	+	+	1.2	.	.	.	.	.	(+)	.	.	10	2	7	1
A_3	Aconitum degenii subsp. paniculatum	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	2.2	+	+	1.2	2.2	1.2	1.2	2.2	.	.	.	.	.	.	.	.	9	1	8	-
A_3	Salix appendiculata	II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	+.2	.	+.2	+	+.2	1.2	.	.	.	.	.	.	.	.	6	-	6	-
A_3	Geranium sylvaticum	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+0.	+	+	+.2	+	.	.	.	.	.	.	.	.	6	-	6	-
A_3	Aconitum lycoctonum subsp. ranunculifolium		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1.2	+	.	.	.	.	2.2	.	2.2	2.2	.	.	.	.	.	.	.	.	5	2	3	-
A_3	Senecio cacaliaster		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1.2	.	1.1	2.2	2.2	.	.	.	.	.	.	.	.	4	-	4	-
	DIFERENTIAL SPECIES (Razlikovalnici)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				-
ART	Myrrhis odorata	III	.	1.2	.	.	.	.	.	.	.	.	.	+	.	.	+.2	+.2	+.2	.	+.2	2.2	.	+	3.3	2.2	.	.	.	.	.	.	.	.	10	4	6	-
MA	Geum rivale		.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	+	+	.	1.1	+	+	1.2	.	.	.	.	.	.	.	.	8	1	7	-

ACONITO-FAGETUM SORBETOSUM CHAMAEMESPILUS subas. nova

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
A_3	Viola biflora	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	+.2	1.2	1.2	.	.	.	.	+	+	.	1.2	7	-	4	3
VP_2	Polystichum lonchitis		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1.1	+	1.1	+	+	.	.	.	.	.	.	.	.	5	-	5	-
VP_2	Sorbus chamaemespilus	II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+.2	1.2	+.2	+.2	.	.	.	.	.	.	.	.	5	-	5	-
A_3	Ribes alpinum		.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	+	.	+.2	.	.	.	.	.	.	.	.	4	1	3	-

CARDAMINE WALDSTEINIANAE-FAGETUM Ž. Košir 1962 var. geogr. ABIES ALBA (Zupančič 1969) Ž. Košir 1979

	CHARACTERISTIC SPECIES (Značilnice)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
F2	Milium effusum	III	.	+.3	.	.	.	.	2.2	+.2	1.2	2.3	+.2	.	.	.	1.2	+.2	.	+	.	.	1.2	.	.	1.2	.	.	1.2	1.2.	2.2.	2.2	+.2	1.2	17	8	3	6
F_1	Cardamine waldsteinii		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1.1	1.1	+0.	2.2	(+)	1.2	.	+.2	7	-	-	7
VP_3	Luzula pilosa		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	+	+	+	.	(+.2)	.	.	5	-	-	5
	DIFERENTIAL SPECIES (Razlikovalnica)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
		I	.	.	.	1.1	.	(rr)	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	1.1	1.1	1.1	+	1.1	+	.	.	9	3	-	6	
VP_3	Abies alba	II	.	.	.	.	.	.	.	.	.	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	+	+	1.1	.	+	+	r	.	8	11	2	4	-	6	7
		III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1.1	+	1.1	.	.	+	.	.	4	-	-	4	

CARDAMINE-FAGETUM DORONICETOSUM AUSTRIACEA subas. nova

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
F_1	Phyteuma spicatum	III	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	+	+	5	1	-	4
F_1	Leucojum vernum		.	.	.	1.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	+	4	1	-	3

F_1 AREMONIO-FAGION (Ht. 1938) Török, Podani & Borhidi 1989

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
Cardamine trifolia	III	+	.	2.2	1.2	1.2	1.2	2.2	.	1.2	2.3	1.2	1.2	2.2	2.2	1.2	.	.	.	+.2	.	.	.	.	.	1.2	+.2	.	+.3	.	1.2	+0.	.	19	13	1	5
Cardamine enneaphyllos		.	.	.	.	.	.	.	.	.	.	2.2	1.2	.	+	1.2	2.2	.	.	.	+	.	+	+	+	.	.	.	.	.	(+)	+	.	11	5	4	2
Lamium orvala		.	+	+	2.2	.	.	+0.	+	+	1.2	1.3	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9	9	-	-
Cardamine waldsteinii		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1.1	1.1	+0.	2.2	(+)	1.2	.	+.2	7	-	-	7
Aremonia agrimonoides		.	+	.	+	+	+	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6	6	-	-
Cyclamen purpurascens		.	.	1.1	.	.	(+)	.	.	.	.	.	(+)	.	.	.	.	.	.	.	+.2	.	.	1.2	.	.	.	.	.	.	.	.	.	.	5	3	2	-
Knautia drymeia subsp. drymeia		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	+	+	+0.	1.1	.	.	5	-	1	4
Anemone trifolia		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1.2	1.2	.	1.1	.	.	.	.	.	.	.	.	.	.	3	-	3	-
Vicia oroboides		+	.	.	.	.	.	.	.	.	.	.	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	3	-	-

F_2 FAGETALIA SYLVATICAE Pawl. 1928

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
	I	4.1	2.1	1.1	3.1	+	1.1	2.1	3.1	3.1	2.1	3.1	2.1	2.1	4.1	2.1	2.1	3.1	3.2	3.1	5.2	3.1	2.2	3.2	5.1	2.1	1.1	+	3.1	2.1	+	2.1	1.1	32	16	8	8
Acer pseudoplatanus	II	.	1.1	1.1	.	+	+	+	.	+.2	.	+	+	1.1	1.1	+	1.2	1.2	2.2	+	1.1	2.2	2.2	.	2.2	3.3	.	.	.	.	+	.	+	22	32	12	16	7	8	3	8
	III	.	1.1	.	.	.	1.2	.	.	.	+	1.1	.	.	1.1	.	.	.	.	.	.	.	.	.	.	.	+	+	+	1.1	+	1.1	+	.	12	5	-	7	
	I	3.1	5.1	5.1	2.2	5.2	5.1	5.1	4.1	3.1	5.2	4.1	5.1	4.1	3.1	5.1	5.1	1.1	2.2	4.1	2.2	2.1	3.2	+.2	1.1	4.1	3.1	4.1	3.1	4.1	3.1	5.1	3.1	32	16	8	8
Fagus sylvatica	II	.	1.1	3.2	+	2.2	+	1.2	+	1.2	+	+	2.2	2.2	1.2	2.2	2.2	+	2.2	2.2	2.2	1.2	3.2	.	1.2	1.2	.	.	+	.	+	.	.	25	32	15	16	7	8	3	8
	III	.	+	.	.	.	.	.	.	.	.	.	.	.	2.2	.	.	.	.	.	.	.	.	.	.	.	1.2	.	1.1	+	+	1.2	+	.	8	2	-	6	
Galeobdolon montanum		+	+	+	.	+	1.1	+	+	.	+	2.2	+	1.1	+	+	+	2.2	1.2	1.2	+	2.2	2.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	30	14	8	8

Actaea spicata		.	+	+	+	+	+	.	+	+	+	.	+	+	+	+	+.2	+	+	.	1.1	+	+	+	+	+	.	.	1.1	(+0)	.	.	+	24	13	7	4
Epilobium montanum		+	+	.	.	+	+	.	.	+	+	+	+	+	+	+	+	+	1.1	+	+	+	.	+	+	+	+	+	+	.	+	.	.	24	12	7	5
Paris quadrifolia		.	.	.	.	+	+	.	.	.	+	+	+	+	+	+	1.1	+	+	+	1.1	+	1.1	+	+	.	+	.	+	+	+	1.2	+	23	9	8	6
Ranunculus lanuginosus		+	.	.	.	+	(+)	+	.	2.2	+	(+)	.	+	+	(+)	+	.	+	1.2	+	+	.	1.2	1.2	.	+	.	.	.	1.2	+	+	21	11	6	4
Scrophularia nodosa		+	1.1	+	+	+	+	+	.	+	+	+	+	+	+.2	.	+	.	.	+	+	+	.	.	+	.	.	.	+	.	.	+	+	21	14	4	3
Galium odoratum		.	2.2	2.2	2.2	1.3	2.2	1.2	.	2.3	1.2	3.3	1.2	.	1.3	1.2	2.2	.	.	.	.	.	.	.	.	.	1.3	1.2	4.4	(+.30)	1.3	3.4	2.3	20	13	-	7
Adoxa moschatellina		.	.	.	.	1.1	.	.	.	.	+	1.2	+.2	.	1.2	+.2	+.2	+	.	.	+	+	.	+.2	+.2	.	.	+	1.2	+.2	+	+.2	+.2	18	7	5	6
Prenanthes purpurea		.	.	r0.	.	+	+	.	.	.	.	+	1.2	.	.	.	.	.	(+)	1.1	+	+	2.2	.	.	+	+	+	+	(+0)	(+)	1.2	+	18	5	5	8
Milium effusum		.	+.3	.	.	.	.	2.2	+.2	1.2	2.3	+.2	.	.	.	1.2	+.2	.	+	.	.	1.2	.	.	1.2	.	.	1.2	1.20.	2.20.	2.2	+.2	1.2	17	8	3	6
Mycelis muralis		+	.	+	.	+	+	.	+0.	+	+	+	+	+	+	+	+	.	.	+	.	+	.	.	.	+	.	.	.	.	(+)	.	.	17	13	2	2
Polystichum aculeatum		.	+	1.1	+	1.2	+	.	+	.	1.1	+	+	1.1	+	1.2	+.2	+	.	+	.	.	.	+	+	.	.	.	.	.	.	.	.	17	13	4	-
Mercurialis perennis		+	1.2	1.1	.	.	2.2	.	.	.	.	.	(+)	.	.	.	.	2.3	1.2	+.2	2.2	1.2	2.2	+.2	1.2	.	.	.	.	.	.	1.2	1.3	15	5	8	2
Stellaria montana		1.2	+	+	.	.	+.2	2.2	2.3	2.2	2.2	1.2	.	1.2	2.2	2.2	1.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	13	13	-	-
Daphne mezereum	II	.	+	.	+	+	+	.	.	.	+	.	+	+	.	.	.	+	.	1.2	+	.	1.2	+	+.2	.	.	.	.	.	.	.	.	13	7	6	-
Geranium robertianum	III	1.2	+	.	.	.	+	.	+	1.2	+	1.2	.	.	+	.	+	+	+	+	.	+	.	.	.	.	.	.	.	.	.	.	.	13	9	4	-
Lilium martagon		.	.	.	.	.	.	.	.	.	.	+	+	+	.	+	+	.	.	.	+	.	+	+	+	.	+0.	.	.	+	.	+	+	13	5	4	4
Carex sylvatica		.	.	+	+	+	+.2	.	.	+.2	+	.	+	.	+	.	(+)	.	.	.	.	.	.	.	.	+	+	+	.	.	.	.	.	12	9	-	3
Lonicera alpigena	II	.	.	+.2	.	.	1.2	.	.	.	.	.	(+)	+.2	.	.	.	.	.	2.2	1.2	+.2	1.2	.	+.2	.	.	.	.	.	.	.	.	9	4	5	-
Aruncus dioicus	III	.	.	+	.	.	.	.	.	+	.	.	+	.	.	+	.	+	.	1.1	+	.	1.2	.	.	.	.	.	.	.	.	.	.	8	4	4	-
Sambucus racemosa	II	+	.	.	.	+	+0.	.	.	.	.	.	.	.	+	.	.	+.2	.	.	+.2	.	.	.	.	.	+	.	.	.	.	r	.	8	4	2	2
Sanicula europaea	III	+	.	.	.	+.2	2.3	+.2	.	.	.	.	.	.	.	.	+.2	.	.	.	.	.	.	.	.	.	+	+.2	.	.	(+.2)	.	.	8	5	-	3
Symphytum tuberosum subsp. tuberosum		.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	1.1	.	+	2.2	1.2	1.2	+	+	8	1	-	7
Cardamine bulbifera		.	.	.	.	.	.	.	.	.	+	1.2	+	.	1.1	1.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	5	-	-
Eurhynchium zetterstedtii	IV	+.3	.	.	2.4	.	.	.	.	.	+.3	.	.	+.3	.	.	.	.	.	.	.	.	.	.	.	+.5	.	.	.	.	.	.	.	5	4	-	1
Lathyrus vernus	III	.	.	+	.	.	+	.	.	.	.	.	+	+	.	.	(+)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	5	-	-
Lunaria rediviva		1.2	.	.	.	.	.	.	3.3	.	.	1.2	.	.	.	.	.	2.2	2.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	3	2	-
Phyteuma spicatum		.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	+	+	5	1	-	4
Pulmonaria officinalis		.	.	.	+	.	(+)	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+0.	.	.	.	.	.	.	.	5	4	-	1
Viola reichenbachiana		+	.	.	+	.	.	.	.	.	.	.	(+)	.	.	.	.	.	.	.	.	.	r	.	.	1.1	.	.	.	.	.	.	.	5	3	1	1
Corydalis cava		.	.	.	.	.	.	.	.	.	.	1.2	1.2	.	.	1.2	2.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	4	-	-
Cardamine pentaphyllos		+	.	.	.	2.2	.	.	.	.	.	.	.	.	.	(+.2)	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	4	-	-
Impatiens noli-tangere		.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	+.2	.	1.2	+.2	+.2	.	.	+.2	.	+.30	.	(+.30)	.	.	4	1	-	3
Leucojum vernum		.	.	.	1.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	+	4	1	-	3
Melica nutans		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	.	1.2	+.2	+.2	.	.	.	.	.	.	.	.	.	4	1	-	3
Salvia glutinosa		+.2	.	.	1.2	+	.	.	.	.	.	.	.	.	.	.	.	+.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	3	1	-
Festuca altissima		.	.	.	.	.	+.2	.	.	.	.	2.2	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	.	.	.	.	(+)	.	.	4	2	-	2
Petasites albus		+	.	.	3.4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.3	.	.	3	2	-	1
Phyllitis scolopendrium		.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	1.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	2	1	-
Poa nemoralis		.	.	+.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	.	+.2	.	.	.	.	.	.	.	.	.	.	.	3	1	2	-
Heracleum sphondylium subsp. montanum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	.	3	1	2	-
Q_2 QUERCETALIA PUBESCENTIS Br.-Bl. (1931) 1932																																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
Camptothecium lutescens	IV	.	1.4	+.4	.	.	1.5	+.3	1.5	.	+.3	2.5	2.5	.	.	.	2.5	1.5	.	+.5	.	.	.	.	.	.	.	.	.	.	.	.	.	1	9	2	-

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
	Galium schultesii	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	r	.	1.2	.	1.2	.	.	+.2	.	.	.	.	.	.	.	.	4	-	4	-
F_3	QUERCO-FAGETEA Br.-Bl. & Vlieger in Vlieger 1937 s. lat.																																					
	Ctenidium molluscum	IV	.	+.4	2.4	+.4	1.4	2.5	+.3	1.5	+.4	1.4	.	1.5	1.4	1.4	1.5	+.5	+.5	.	1.5	.	+.5	+.4	+.5	+.5	.	.	.	.	.	.	.	.	20	14	6	-
	Anemone nemorosa	III	.	.	.	.	.	.	.	.	.	+	.	1.2	.	+.2	+	+.2	.	.	1.2	1.2	+	1.2	+	+	.	.	.	.	.	+	.	+	13	5	6	2
	Isothecium myurum		.	+.3	+.4	.	+.2	1.5	.	2.5	.	2.4	+.5	.	2.5	1.4	+.5	.	.	+.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	11	10	1	-
	Lonicera xylosteum	II	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	+	+.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	3	1	-
	Carex digitata	III	.	.	+	.	.	+.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	3	2	1	-
	Polypodium vulgare		.	.	+0.	.	.	.	.	r0	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	3	-	-
VP_1	VACCINIO-PICEION Br.-Bl. in Br.-Bl. et al. 1939 s. lat.																																					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
		I	.	.	.	2.1	.	.	+	2.1	.	2.1	1.1	.	.	+	.	.	.	.	.	+	(1.2)	+	.	1.1	.	3.1	2.1	2.1	2.1	2.1	2.1	3.3	17	6	4	7
	Picea abies	II	.	.	.	+	.	.	.	.	.	+	.	.	.	+	.	.	.	+	.	.	+	.	.	+	+	.	.	+	2.1	+	r	+	12	19	3	6	3	5	6	8
		III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	+	.	.	3	-	-	3		
	Luzula sylvatica subsp. sylvatica		.	.	.	.	.	.	.	.	.	.	.	+.2	1.2	.	(+.3)	.	.	.	.	.	.	.	.	.	+.2	+.2	.	r	+	+0.	1.2	+.2	+.2	11	3	1	7
	Mnium spinosum	IV	.	.	.	+.3	.	.	.	.	+.3	.	+.5	+.3	.	.	+.2	+.3	.	.	+.3	.	.	+.5	+.3	.	.	.	.	.	.	.	.	.	9	5	4	-
	Lonicera nigra	II	.	.	.	.	(+)	.	.	.	+.2	.	.	+	.	+	.	.	.	.	+.2	.	.	+.2	.	.	(+)	.	.	.	.	.	.	+	8	4	2	2
	Gymnocarpium dryopteris	III	.	.	.	.	(+)	.	.	.	+.2	.	.	+	.	(+)	.	.	.	.	.	.	.	.	.	.	+.2	.	.	.	+.2	.	.	.	6	4	-	2
	Melampyrum sylvaticum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	+	.	.	3	-	-	3
VP_2	VACCINIO-PICEETALIA Br.-Bl. in Br.-Bl. et al. 1939 emend. K.-Lund 1967 s. lat.																																					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
	Adenostyles glabra	III	.	1.2	2.2	.	+	+.2	+.2	.	+	.	1.2	2.2	2.2	.	.	.	+	+	.	+	.	+	+.2	+.2	.	.	.	+	.	.	.	+.2	17	9	6	2
	Dryopteris expansa (?) D. dilatata		.	+	.	+	+	.	+.2	.	+.2	+.2	.	.	.	+	+.2	.	.	.	.	+	+	.	.	.	+	+	+	.	+	+	.	+	16	8	2	6
		I	.	.	.	1.1	.	(rr)	.	.	.	-	.	.	.	+	.	.	.	.	.	.	.	.	.	.	1.1	1.1	1.1	+	1.1	+	-	.	9	3	-	6
	Abies alba	II	.	.	.	-	.	-	.	.	.	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	+	+	1.1	-	+	+	r	.	8	11	2	4	-	-	6	7
		III	.	.	.	-	.	-	.	.	.	-	.	.	.	-	.	.	.	.	.	.	.	.	.	.	1.1	+	1.1	-	-	+	-	.	4	-	-	4		
	Peltigera leucophlebia	IV	.	+.2	.	.	.	+.2	.	+.2	.	+	.	.	+.2	.	.	.	+.3	.	.	.	+.3	.	+.2	.	.	.	.	.	.	.	.	.	+.2	9	5	3	1
	Rosa pendulina	II	.	.	.	.	+	+	.	.	.	.	.	.	+	.	.	.	.	+.2	+	1.2	+	1.2	.	1.2	.	.	.	.	.	.	.	.	9	3	6	-
	Valeriana tripteris	III	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	+.2	+.2	+0.	+	.	+.2	.	+.2	.	.	.	.	.	.	.	.	7	1	6	-
	Veronica latifolia		.	.	.	.	.	.	.	.	.	.	.	(+)	+	.	.	.	.	.	+	+	.	1.2	.	+.2	.	.	.	.	.	.	.	.	6	2	4	-
	Sorbus chamaemespilus	II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+.2	1.2	+.2	+.2	.	.	.	.	.	.	.	5	-	5	-
	Polystichum lonchitis	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1.1	+	1.1	+	+	.	.	.	.	.	.	.	5	-	5	-
	Atrichum undulatum		.	.	.	.	+.3	.	.	.	.	.	.	+.5	+.4	.	.	+	.	.	.	.	.	.	.	.	.	+.5	.	.	.	.	.	.	.	5	4	-	1
	Sorbus aucuparia var. glabrata	II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	1.2	+	.	+	.	.	.	.	.	.	.	4	-	4	-
		III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	1	4	-	1	4	-
	Polytrichum formosum	IV	.	.	.	.	+.3	.	.	.	.	+.3	.	.	.	.	+.5	.	.	.	.	.	.	.	.	.	.	+.3	.	.	.	.	.	.	.	4	3	-	1
	Mnium punctatum		+.2	.	.	+.4	+.3	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	3	1	-
	Thelypteris phegopteris	III	.	.	.	.	.	.	.	.	.	.	.	.	+.2	.	.	.	.	.	.	+.2	.	.	.	.	.	.	.	.	+	+	.	.	4	1	1	2
	Rubus saxatilis	II	.	.	.	.	.	.	.	.	.	.	.	(+)	.	.	.	.	.	.	.	.	.	1.1	+	.	.	.	.	.	.	.	.	.	3	1	2	-
	Vaccinium myrtillus	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	.	+.2	.	.	.	.	.	.	.	+.2	.	.	3	-	2	1

VP$_3$ VACCINIO-PICEETEA Br.-Bl. 1939 emend. Zupančič (1976) 2000

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
Oxalis acetosella	III	.	1.2	1.2	2.2	2.2	2.2	2.2	+.2	1.2	2.3	1.2	+.2	1.2	2.2	1.2	.	.	.	.	+.2	+.2	.	.	+.3	2.2	4.5	2.3	1.3	+.2	1.3	+.2	2.2	25	14	3	8
Gentiana asclepiadea		.	+.2	+	.	+	1.2	+.2	.	.	+	.	+.2	+.2	.	+.2	+.2	.	+	+	+	+.2	+	+	+.2	+	.	+	+	+0.	+.2	+	+	24	10	7	7
Calamagrostis arundinacea		.	.	.	.	.	.	.	.	.	+	.	2.3	.	.	.	.	+.2	.	1.20	.	+.2	.	+.20	+.2	+.2	.	.	+.2	.	+.2	1.20	.	11	2	5	4
Maianthemum bifolium		.	.	.	.	+.2	+.2	+	.	.	+	.	+.2	.	.	1.2	+.2	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	.	9	7	2	-
Grimmia pulvinata		.	+.2	+.3	.	.	+.3	+.2	+.3	.	.	.	.	.	.	.	.	.	+.3	.	+.3	.	.	.	.	.	.	.	.	.	.	.	.	7	5	2	-
Luzula luzuloides		.	+.2	+.2	.	.	(+)	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	.	+	.	.	.	+.20	.	7	4	-	3
Luzula pilosa		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	+	+	+	.	(+.2)	.	.	5	-	-	5
Hypnum cupressiforme		.	.	.	.	+.3	.	+.4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.3	.	.	3	2	-	1
Solidago virgaurea subsp. minuta		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	+	.	.	+	.	.	.	3	-	1	2
Solidago virgaurea subsp. virgaurea		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	+	.	3	-	1	2

EP$_3$ ERICO-PINETEA Ht. 1959 s. lat.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
Calamagrostis varia	III	.	2.2	1.20	.	.	+.2	1.2	.	+.2	.	.	.	+.2	.	.	.	.	+.2	.	+	.	+.2	.	.	.	.	.	.	.	.	.	.	9	6	3	-
Cirsium erisithales		.	.	+	.	.	.	.	.	.	.	.	(+)	.	.	.	.	+	+	+	+	1.1	1.1	.	+	.	.	.	.	.	.	.	.	9	2	7	-
Buphthalmum salicifolium		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	.	+	.	.	.	.	.	.	.	.	.	.	3	-	-	3
Laserpitium latifolium		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+0.	.	.	.	+.2	.	.	.	.	.	.	.	.	.	.	3	-	3	-

A$_1$ ADENOSTYLION ALLIARIAE Br.-Bl. 1925

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
Dryopteris filix-mas	III	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.2	1.2	+.2	2.2	1.2	3.3	3.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	+.2	2.2	2.2	2.2	+	+	1.2	1.1	1.3	+	1.2	32	16	8	8
Athyrium filix-femina		1.2	1.2	1.2	1.1	2.2	+.2	1.2	+	1.2	2.2	+.2	1.2	2.2	2.2	2.2	2.2	.	1.2	1.2	2.2	1.2	1.2	.	1.2	2.2	1.2	+	2.2	1.1	3.3	1.2	3.3	30	16	6	8
Senecio ovatus		+.2	2.2	.	1.1	+	2.2	3.3	.	2.2	1.2	+	+.2	+	2.1	1.2	2.2	3.3	3.3	2.2	2.2	3.3	.	.	.	2.2	+	+	+	1.2	3.3	2.2	+	27	14	5	8
Polygonatum verticillatum		+	.	.	+	1.2	1.20	.	.	+	+	+	+.2	+	+	+	+	.	.	1.2	1.1	1.2	1.2	+.2	+.2	+	+	+0.	+0.	(+0)	.	+	+	25	12	6	7
Doronicum austriacum		.	.	.	+	.	.	.	.	.	+.2	.	+	1.1	.	+	+.2	.	1.2	1.2	1.1	2.2	+.2	2.2	2.2	.	+	+0.	1.1	1.2	+	+	2.2	20	6	7	7
Cicerbita alpina		.	.	.	.	.	.	.	.	.	.	.	+	+	+.2	1.2	+.2	+.2	.	2.2	1.2	+	+.2	.	3.3	.	+0.	.	.	+0.	1.2	2.1	1.1	16	5	6	5
Stellaria nemorum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	(+)	.	2.2	.	2.2	1.2	r	1.2	2.2	2.2	2.3	1.2	+.2	2.3	3.4	+.2	1.2	15	1	6	8
Ranunculus platanifolius		.	.	.	.	+	+	.	.	.	.	.	+	+	.	(+)	.	.	.	1.1	+	+	+	.	+	.	.	.	.	(+0)	+	+	+	14	5	5	4
Thalictrum aquilegiifolium		.	.	.	.	.	(+)	.	.	.	.	.	.	.	.	.	+.2	+	.	+	1.1	+	+	+.2	1.2	.	.	.	+0.	.	1.2	+0.	+	13	2	7	4
Veratrum album subsp. lobelianum		.	.	.	.	+	.	.	.	+	.	+	1.1	.	.	+	2.2	.	.	.	+	+	1.1	1.1	+	.	.	.	.	.	.	.	.	11	6	5	-
Myrrhis odorata		.	1.2	.	.	.	.	.	.	.	.	.	+	.	.	+.2	+.2	+.2	.	+.2	2.2	.	+	3.3	2.2	.	.	.	.	.	.	.	.	10	4	6	-
Aconitum degenii subsp. paniculatum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	2.2	+	+	1.2	2.2	1.2	1.2	2.2	.	.	.	.	.	.	.	.	9	1	8	-
Geum rivale		.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	+	+	.	1.1	+	+	1.2	.	.	.	.	.	.	.	.	8	1	7	-
Heracleum sphondylium subsp. sphondylium		.	.	.	.	.	+0.	.	.	.	.	.	+	+	1.1	+	.	.	.	.	.	2.2	.	.	1.1	.	.	.	.	.	.	.	.	7	5	2	-
Veratrum album subsp. album		+.2	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	(+)	.	+	7	3	-	4
Aconitum lycoctonum subsp. ranunculifolium		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1.2	+	.	.	.	.	2.2	.	2.2	2.2	.	.	.	.	.	.	.	.	5	2	3	-
Ribes alpinum	II	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	+	.	+.2	.	.	.	.	.	.	.	.	4	1	3	-
Phyteuma ovatum	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	+	.	+	.	.	.	.	.	.	.	.	.	.	3	-	3	-

A$_2$ ADENOSTYLETALIA G. et J. Br.-Bl. 1931 s. lat.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
Rubus idaeus	II	1.2	+.2	1.1	.	+	+	2.2	.	+.3	.	+	+	2.1	1.1	+	1.2	+	2.3	+	+	1.2	.	.	1.2	1.2	+	1.1	+	+	1.2	+	.	27	14	6	7

	Saxifraga rotundifolia	III	.	+	+	.	+	+.2	.	.	.	+	+	+.2	1.2	.	+.2	+.2	+.2	+.2	+	1.2	+	+.2	1.2	1.2	.	.	.	.	.	1.2	.	.	19	10	8	1
	Adenostyles alliariae		.	.	.	.	.	.	.	.	2.2	.	(+.2)	+	2.2	+	3.2	+.2	.	.	+	+.2	+	.	2.2	2.2	.	.	+0.	.	.	+	+0.	3.3	16	7	5	4
	Myosotis sylvatica		.	.	.	.	.	+.2	+.2	+.2	1.2	+.2	+.2	.	+.2	1.2	.	+	1.2	+.2	+.2	.	1.2	.	+.2	+.2	.	.	.	.	.	.	.	.	15	9	6	-
	Chrysosplenium alternifolium		2.2	.	.	.	.	.	+.2	+.2	1.2	+.2	.	.	+.2	2.2	+.2	.	.	+.2	.	.	+.2	.	.	1.2	.	.	+.2	.	.	.	.	.	12	8	3	1
	Crepis paludosa		.	.	.	.	.	.	.	.	.	.	.	.	+	.	(+.2)	.	.	+	+	1.1	+	+	+	1.2	.	.	.	.	.	(+)	.	.	10	2	7	1
	Deschampsia caespitosa		.	.	.	.	.	.	+.2	.	.	+	.	.	.	+.2	.	.	.	.	+.2	.	.	.	.	.	1.2	+.2	+.2	+.2	+.2	2.3	.	.	10	3	1	6
	Rumex alpestris (=R. arifolius)		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	(+)	.	1.1	+.2	.	1.2	+0.	+	1.1	.	.	.	.	+	+	.	+	10	1	6	3
	Viola biflora	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	+.2	1.2	1.2	.	.	.	.	+	+	.	1.2	7	-	4	3
	Aconitum lycoctonum subsp. vulparia		.	+.2	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+.2	.	+	+	.	1.1	.	.	.	.	.	.	.	.	.	.	6	2	4	-
	Geranium sylvaticum	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+0.	+	+	+.2	+	.	.	.	.	.	.	.	.	6	-	6	-
	Salix appendiculata	II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+.2	+.2	.	+.2	+	+.2	1.2	.	.	.	.	.	.	.	.	6	-	6	-
	Senecio cacaliaster	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1.2	.	1.1	2.2	2.2	.	.	.	.	.	.	.	.	4	-	4	-
E	EPILOBIETEA ANGUSTIFOLII R. Tx. & Prsg. in R. Tx. 1950 s. lat.																																					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
	Galeopsis speciosa	III	.	.	.	.	+	+.2	+	.	+	.	.	.	.	1.1	.	.	+.2	+	+	.	+	.	.	+	+	.	.	+	.	.	+	.	13	5	5	3
	Fragaria vesca		.	.	.	.	+	.	.	.	.	.	.	+	.	.	.	+	.	.	+	+	+	.	.	.	1.2	.	+	.	.	.	.	.	8	3	3	2
TG	TRIFOLIO-GERANIETEA SANGUINEI Th. Müller 1961 s. lat.																																					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
	Galium aristatum	III	.	.	1.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+.2	.	2.2	.	.	.	.	.	.	.	.	.	.	4	1	3	-
	Fragaria viridis		.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	3	2	1	-
MA	MOLINIO-ARRHENATHERETEA R. Tx. 1937																																					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
	Chaerophyllum villarsii (C. hirsutum)	III	1.2	.	.	+	.	.	.	.	2.2	+	.	.	1.2	.	+	+.2	1.2	+.2	+	+	2.2	.	+	2.2	.	.	.	.	+0.	+.2	+	+0.	18	7	7	4
	Dactylorhiza maculata agg.		.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	(+)	.	+	4	1	1	2
ART	ARTEMISIETEA Lohm., Prsg. & R. Tx. in R. Tx. 1950 s. lat.																																					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
	Urtica dioica		2.3	1.2	+.2	1.2	.	.	+.2	+.2	1.3	+	1.2	+	+.2	2.2	+	1.2	1.2	.	+.2	1.1	+.2	.	.	1.2	1.2	+	.	+.2	.	.	.	.	22	14	5	3
	Silene dioica (Melandrium rubrum)	III	+	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	+	+	.	+	+	+	+	.	+	+	+	.	.	14	3	6	5
	Lamium maculatum		+.5	.	.	r	.	.	.	.	.	.	.	.	.	2.2	.	.	.	.	.	+	.	.	.	1.2	.	.	.	+	.	.	.	.	6	3	2	1
AS	ASPLENIETEA TRICHOMANIS Br.-Bl. in Meier & Br.-Bl. 1934 corr. Oberd. 1977 s. lat.																																					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
	Cystopteris fragilis	III	.	+.2	+	.	.	.	.	.	.	+	+.2	+.2	+	.	+.2	.	.	+	+	+	+.2	+.2	1.2	.	.	.	.	.	.	.	.	.	13	7	6	-
	Asplenium viride		.	+	.	.	.	.	.	.	.	+	.	.	+	.	.	.	.	.	.	.	+	+	+	+	.	.	.	.	.	.	.	.	7	3	4	-
O	OTHER SPECIES (Ostali vrsti)																																					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
		I	.	-	+	.	.	-	-	.	.	1.1	-	-	+	.	+	-	-	-	.	.	.	.	.	.	-	+	+	.	(+)	+	.	3.3	9	4	-	5
	Sorbus aucuparia subsp. aucuparia	II	.	+	+	.	.	(+)	+	.	.	+	+	+	1.1	.	-	+	+	1.2	.	.	.	.	.	.	+	+	1.1	.	-	1.2	.	+	16 18	9 10	2 2	5 6
		III	.	-	-	.	.	-	-	.	.	-	-	-	-	.	-	-	-	-	.	.	.	.	.	.	-	-	-	.	-	1.2	.	-	1	-	-	1
	Hypericum maculatum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1.2	.	.	+.2	+.2	.	.	+.2	.	1.2	.	.	5	-	2	3

ML MOSSES AND LICHENS (Mahovi in lišaji)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32			
	IV	.	1.4	+.4	.	.	1.4	1.4	+.3	+.4	.	.	+.5	+.4	+.3	.	.	.	.	1.5	2.4	2.5	1.4	2.5	+.5	.	.	.	.	.	.	.	.	15	9	6	-
Anomodon attenuatus			.	+.3	1.4	.	+.4	.	1.3	.	1.3	.	.	+.3	+.3	+.5	.	+.5	.	.	.	+.5	.	.	+.5	+.5	.	.	.	.	.	+.5	+.5	14	8	3	3
Plagiochila asplenioides			+.3	+.3	.	+.3	+.2	.	+.4	+.3	+.3	+.3	.	.	+.3	+.4	.	.	+.3	.	+.4	.	.	.	.	+.3	.	.	.	+.4	.	.	14	10	2	2
Taxiphyllum depressum			.	+.3	.	+.4	+.3	.	.	.	+.4	.	.	+.5	+.4	.	+.5	+.5	.	.	.	.	.	+.4	.	.	.	.	.	.	.	.	.	10	8	1	1
Orthodicranum montanum			.	.	.	.	.	.	.	+.3	.	.	.	.	+.2	+.3	+.5	.	.	.	.	.	.	.	+.5	1.5	.	.	.	+.2	+.2	.	+.3	9	4	2	3
Mnium seligeri			+.2	.	.	.	+.2	+.2	.	.	.	+.2	.	.	.	.	.	.	+.5	.	1.3	.	.	.	+.5	+.3	.	.	.	.	.	.	.	8	4	4	-
Fissidens taxifolius			+.3	.	+.3	.	+.2	+.3	.	.	.	.	.	.	.	+.2	+.5	.	.	+.3	.	.	.	+.4	.	.	.	.	.	.	.	.	.	8	6	2	-
Tortella tortuosa			.	.	.	.	.	.	.	.	.	.	+.5	.	.	.	.	.	+.5	.	.	.	+.5	.	+.5	+.5	.	.	.	.	.	.	.	5	1	4	-
Tortella fragilis			.	.	.	.	.	.	.	.	.	+.5	+.5	.	.	+.5	+.5	+.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	4	-	-
Amblystegiella subtilis			.	.	.	.	.	.	+.4	.	.	.	.	.	1.4	.	.	.	.	.	.	2.4	+.5	.	.	.	.	.	.	.	.	.	.	4	2	2	-
Anomodon viticulosus			.	.	+.2	.	.	.	.	.	.	.	+.5	+.2	.	.	.	.	.	.	.	.	+.3	.	.	.	.	.	.	.	.	.	.	4	3	1	-
Cladonia pyxidata			.	.	.	.	.	.	.	.	+.2	.	.	.	+.2	.	.	.	.	.	.	.	.	.	+.3	+.5	.	.	.	.	.	.	.	4	2	2	-
Pellia epiphylla			.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	1.3	.	.	.	.	.	.	.	.	.	.	.	.	3	2	1	-
Conocephalum conicum			.	.	.	.	+.2	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	3	-	-
Mnium undulatum			.	.	+.4	+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	3	-	-
Thamnium alopecurum			.	.	+.2	.	.	.	+.2	.	+.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	3	-	-

PHYTOCOENOLOGICAL SYNTHETIC TABLE (Fitocenološka sintezna tabela) 2: ALTIMONTANOUS BEECH FORESTS IN SLOVENIA (Altimontanski bukovi gozdovi Slovenije)

Sinsistematical characteristic (Sinsistematska pripadnost)																			
Number of anal. tab. (Številka analitične tabele)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Author of analitical table (Avtor analitične tabele)	Zupančič	Marinček & Čarni	Marinček & Čarni	Marinček & Čarni	Marinček & Čarni	Marinček	Marinček & Čarni	Marinček & Čarni	Marinček & Čarni	Marinček & Čarni	Marinček & Čarni	Marinček & Čarni	Marinček	Zupančič	Dakskobler	Marinček, Pol-dini & Zupančič	Marinček, Pol-dini & Zupančič	Zupančič	Košir
Altitude (Nadmorska višina)	1090-1420	1100-1480	1210-1560	1220-1550	1250-1470	1370-1600	910-1460	910-1480	1100-1400	980-1430	880-1420	1260-1430	1430-1560	1260-1500	760-1180	730-1330	800-1550	1240-1420	590-1400
Aspect (Nebesna lega)	N-W-S	all (vse)	S-N	S	N	all (vse)	all (vse)	all (vse)	S-W	S	all (vse)	N	N	N-S-E	N-NE	S-N	all (vse)	N-W-E	N
Slope in degrees (Nagib v stopinjah)	0-30	5-35	0-40	0-40	20-40	15-40	0-35	0-35	5-40	0-35	25-40	20-40	20-35	10-45	30-40	0-40	8-40	5-25	2-35
Bedrock (Geološka podlaga)	apn	apn dol	apn	apn apn r. dol	apn	apn	apn	dol da apn	dol da	dol da	dol (apn)	dol da	dol da apn	apn dol	apn da dol	dol da apn	dol da	m m	g d b a
Stonines % (Kamnitost %)	-	0-30	0-20	0-40	0-50	5-60	0-25	0-25	0-50	0-40	0-80	1-30	1-50	-	10-40	0-20	0-50	-	-
Location (Kraj popisov)	Trnovski g. Idrijski žavorniki Karavanke	Dolenjska	Dolenjska	Dolenjska	Dolenjska	Dolenjska	Štajerska Menina planina	Pre-Alpine region of Slovenia					Blegoš Ratitovec Porezen	Julijske Alpe	Trnovski gozd	Julijske Alpe Karavanke	Julijske Alpe Karavanke	Pohorje	Pohorje
State (Država)	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija	Slovenija
Number of relevé (Število popisov)	16	34	19	21	14	29	20	20	26	21	14	10	10	8	11	32	28	8	24

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Association (Asociacija)		STELLARIO-FAGETUM	R A N U N C U L O - F A G E T U M												ACONITO-FAGETUM	RHODODENDRO-FAGETUM	ANEMONO-FAGETUM		CARDAMINE-FAGETUM	
	Geographic variant (Geografska varianta)			CALAMINTHA GRANDIFLORA					ISOPYRUM	T Y P I C A								HELLEBORUS NIGER			
	Altitudinal variant (Višinska varianta)							ALLIUM V.							SALIX W.					ABIES ALBA	
	STELLARIO MONTANAE-FAGETUM																				
	Characteristic species (Značilnice)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
F_2	Stellaria montana	III	783 V	15 I	.	.	.	.	452 IV	1 I	.	.	.	.	.	.	.	.	.	.	366 IV
F_2	Polystichum aculeatum		161 V	33 III	54 II	.	2 II	18 I	3 II	22 I	20 I	2 II	39 III	6 IV	1 I	5 III	2 II	1 I	57 III	1 I	.
F_2	Cardamine pentaphyllos		111 II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Distinguishing species (Razlikovalnice)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		I	2530 V	108 IV	529 IV	159 IV	42 IV	117 IV	1 I	54 III	60 II	14 III	39 II	- -	2 II	4751 V	5 IV	16 I	19 I	1251 V	118 III
F_2	Acer pseudoplatanus	II	161 IV	36 IV	268 IV	4 III	3 II	3 II	28 II	303 IV	63 IV	3 II	4 III	- -	7 IV	1001 V	3 III	3 II	2 II	472 V	203 IV
		III	126 II	122 IV	212 III	2 II	72 II	1 I	- -	53 II	80 III	28 III	3 II	7 IV	- -	- -	55 V	- -	1 I	131 V	147 II
F_2	Scrophularia nodosa		39 V	1 I	5 II	.	.	2 I	.	5 III	3 II	2 II	.	.	.	5 III	.	.	.	4 III	.
F_2	Corydalis cava		203 II	.	.	.	.	34 I	216 III	375 I	.	.	.	.	.	.	.	.	.	.	.
	RANUNCULO PLATANIFOLII-FAGETUM																				
	Characteristic species (Značilnice)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
VP	Luzula sylvatica subsp. sylvatica	III	32 II	113 II	29 II	75 III	504 IV	305 V	25 I	25 I	1 I	25 I	73 II	57 V	503 V	1 I	1 I	.	109 III	69 V	189 II
A_3	Ranunculus platanifolius		3 II	106 III	5 III	30 IV	76 IV	108 IV	55 IV	4 II	5 III	51 III	109 III	53 III	7 IV	68 IV	.	.	.	4 III	115 II
VP_3	Polystichum lonchitis		.	1 I	1 I	3 II	76 IV	160 V	.	129 IV	.	1 I	37 II	9 V	157 V	129 IV	1 III	2 II	76 III	.	.
	Distinguishing species (Razlikovalnice)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
F_1	Aremonia agrimonoides	III	4 III	35 IV	32 III	29 III	.	1 I	33 V	4 II	23 II	4 III	37 II	4 III	.	.	.	.	21 II	.	.
A_3	Veratrum album subsp. album		2 II	167 V*	280 IV	385 V	254 V	529 V	268 V	428 IV	4 II	160 IV	39 II	10 V	251 V	.	3 III	.	.	4 III	398 III*
F_2	Galeobdolon flavidum		.	168 V*	229 V*	51 III*	4 III	37 II	78 III	217 IV*	159 V*	100 IV	40 III	8 V	.	.	- I	19 III*	147 IV*	.	.
F_1	Hacquetia epipactis		.	45 I	1 I	726 IV	1 I	553 III	.	1 I	.	609 IV	36 I	.	176 II	.	.	- I	- I	.	.
A_3	Anthriscus nitida		.	.	.	2 II	.	2 I	77 II	115 II	.	2 II	.	.	154 IV	.	.	.	.	.	.

	Distinguishing species of the geographic variants (Razlikovalnice geografskih variant)				3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
F_1	Calamintha grandiflora	III	.	33 IV	56 III	52 III	39 II	73 III	.	1 I	- I	.	.	.	.	.	.	1 I	.	.	.
F_2	Carex pilosa		.	235 I	.	383 II	36 I	18 I	.	.	.	.	.	.	.	.	.	.	.	.	.
F_2	Allium victorialis		.	1 I	.	83 I	.	477 III	.	.	.	.	.	.	.	.	.	.	.	.	.
F_1	Isopyrum thalictroides		.	15 I	16 I	24 I	.	.	2275 V	.	.	.	.	.	.	.	.	.	.	.	42 I
MA	Crocus vernus		.	.	.	.	.	.	489 IV	.	.	.	.	.	.	.	.	.	.	.	.
F_2	Primula vulgaris		.	.	.	.	.	.	.	26 I	21 II	27 III	2 II	2 II	1 I	.	.	2 II	.	1 I	.
F_2	Polygonatum multiflorum		.	.	.	.	.	.	.	2 I	60 II	28 III	2 II	.	.	.	.	2 I	.	.	.
A_3	Salix waldsteiniana	II	.	.	.	.	.	.	.	.	.	.	.	.	5 III	.	.	.	.	.	.
	ACONITO PANICULATI-FAGETUM																				
	Characteristic species (Značilnice)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A_3	Aconitum lycoctonum subsp. ranunculifolium	III	32 I	1 I	1 I	.	.	5 III	.	.	.	.	.	.	.	656 III	.	.	19 I	.	.
A_3	Aconitum degenii subsp. paniculatum		1 I	.	.	.	.	.	.	.	.	2 II	.	.	.	846 V	.	.	.	.	.
A_3	Crepis paludosa		1 I	.	.	.	.	.	.	.	.	.	.	.	102 III	131 V	.	.	.	- I	9 I
A_3	Geranium sylvaticum		.	.	1 I	.	.	4 III	.	.	.	.	.	.	2 II	8 V	.	.	1 I	.	.
A_3	Salix appendiculata	II	.	.	.	.	.	2 II	.	.	.	.	.	.	.	69 V	2 II	.	.	.	.
A_3	Rumex alpestris (=R. arifolius)	III	.	.	.	.	.	.	.	.	.	.	.	.	.	191 V	.	.	.	.	.
A_3	Senecio cacaliaster		.	.	.	.	.	.	.	.	.	.	.	.	.	563 III	.	.	.	.	.
	Distinguishing species (Razlikovalnici)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ART	Myrrhis odorata	III	33 II	.	.	.	.	.	.	.	.	.	.	.	.	910 V	.	.	.	.	.
MA	Geum rivale		1 I	.	.	.	.	.	.	.	.	.	.	.	56 IV	131 V	.	.	.	.	.
											.	.	.	.	.	.	.	.	.	.	.
	RHODODENDRO HIRSUTI-FAGETUM										.	.	.	.	.	.	.	.	.	.	.
	Characteristic species (Značilnice)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
VP_3	Clematis alpina	II	.	.	.	1 I	4 III	20 II	.	.	1 I	- I	4 III	3 II	1 I	.	139 IV	1 I	3 II	.	.
VP_3	Rhododendron hirsutum		.	.	.	.	1 I	191 III	.	.	.	- I	.	1 I	7 IV	.	3296 V	.	1 I	.	.
AS	Paederota lutea	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	144 V	.	.	.	.
VP_3	Laserpitium peucedanoides		.	.	.	.	.	.	.	.	.	.	.	.	.	.	94 IV	.	.	.	.
VP_3	Rhodothamnus chamaecistus	II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	49 III	.	.	.	.
	Distinguishing species (Razlikovalnici)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
F_3	Convallaria majalis	III	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.	5 III	.	.	.	.
		I	.	.	.	.	.	.	.	.	- -	.	- -	- -	- -	.	5 IV	- -	- -	.	.
F_2	Laburnum alpinum	II	.	.	.	.	.	.	.	.	1 I	.	1 I	2 II	1 I	.	3 II	17 I	2 II	.	.
		III	.	.	.	.	.	.	.	.	- -	.	- -	- -	- -	.	5 IV	- -	- -	.	.
	Distinguishing species of the geographic variant (Razlikovalnice geografske variante)				3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
F_1	Omphalodes verna	III	.	30 I	.	108 I	.	.	.	1 I	106 I	1 I	1 I	.	.	.	5 III	.	.	.	.
AS	Phyteuma scheuchzeri subsp. columnae		.	.	.	.	.	.	.	.	.	.	.	.	.	.	8 V	.	.	.	.
F_1	Anemone trifolia		.	.	.	.	.	.	.	.	.	1 I	.	.	.	138 III	140 IV	273 V	521 V	.	.
	Primula carniolica		.	.	.	.	.	.	.	.	.	.	.	.	.	.	3 III	.	.	.	.

ANEMONO TRIFOLIAE-FAGETUM

	Characteristic species (Značilnici)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
EP	Polygala chamaebuxus	III	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.	4 III	66 III	.	.	.
VP_3	Orthilia secunda		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	18 II	3 II	.	.
	Distinguishing species (Razlikovalnici)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		I	360 III	16 I	34 II	50 III	39 III	1 I	32 IV	29 III	435 III	228 II	184 V	704 V	352 III	65 III	- II	1189 IV	646 V	2032 V	275 IV
VP_3	Picea abies	II	2 II	5 III	2 I	3 II	2 II	-1	82 V	3 II	243 III	134 III	75 III	53 III	2 II	4 III	- II	394 V	183 IV	224 V	5 III
		III	- -	1 I	- -	- -	- -	- -	29 I	- -	1 I	1 I	- -	2 II	- -	- -	- I	2 II	1 I	4 III	- I
		I	.	.	.	.	.	.	.	.	2 I	.	36 I	1400 V	.	.	.	64 II	1903 V	.	.
VP_3	Larix decidua	II	.	.	.	.	.	.	.	.	- -	.	- -	1 I	.	.	.	- -	- -	.	.

CARDAMINE WALDSTEINIANAE-FAGETUM

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
F_2	Milium effusum	III	294 III	1 I	.	.	.	36 I	6 III	62 II	.	.	.	.	.	126 III	.	.	.	626 V	595 III
VP_3	Luzula pilosa		.	.	.	.	.	.	.	1 I	1 I	.	.	.	.	.	.	1 I	1 I	5 IV	139 III
F_1	Cardamine waldsteinii		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	408 V	1553 IV
	Distinguishing species of the variant (Razlikovalnica variante)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		I	32 II	16 I	2 I	1 I	2 II	.	.	1 I	22 II	26 II	36 I	53 III	.	.	45 II	18 II	3 II	252 V	879 V
VP_3	Abies alba	II	1 I	3 II	1 I	1 I	1 I	.	.	- -	2 I	24 I	1 I	51 II	.	.	1 I	32 II	21 II	68 V	86 III
		III	- -	2 II	1 I	1 I	1 I	.	.	2 I	1 I	- -	- -	2 II	.	.	1 I	- -	1 I	128 III	44 II

F_1 AREMONIO-FAGION (Ht. 1938) Török, Podani & Borhidi 1989

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Cardamine trifolia	III	765 V	414 V	395 III	195 V	217 V	277 IV	426 V	401 V	444 IV	216 IV	396 IV	625 V	352 V	1 I	3 III	34 II	190 III	129 IV	1188 V
Lamium orvala		175 III	66 I	199 III	.	.	1 I	.	3 II	2 II	50 II	.	.	.	.	.	1 I	- I	.	.
Aremonia agrimonoides	III	4 III	35 IV	32 III	29 III	.	1 I	33 V	4 II	23 II	4 III	37 II	4 III	.	.	.	.	21 II	.	.
Cardamine enneaphyllos		282 II	671 V	791 V	836 IV	411 V	726 V	1176 V	451 III	370 IV	159 IV	1073 IV	109 V	476 V	5 III	.	112 II	244 III	1 II	887 IV
Cyclamen purpurascens		3 II	2 II	.	52 III	74 III	90 III	.	51 I	141 V	218 V	357 IV	52 II	4 III	64 II	229 V	176 IV	148 V	.	.
Vicia oroboides		2 II	79 III	29 II	30 IV	3 II	4 III	.	1 I	1 I	4 III	71 I	.	5 III	.	143 V	.	.	.	.
Calamintha grandiflora	III	.	33 IV	56 III	52 III	39 II	73 III	.	1 I	- I	.	.	.	.	.	.	1 I	.	.	.
Helleborus niger subsp. niger		.	221 I	.	109 III	429 IV	182 III	4 III	2 I	1117 V	288 III	556 IV	504 V	2 II	.	141 IV	441 IV	690 V	.	.
Hacquetia epipactis		.	45 I	1 I	726 IV	1 I	553 III	.	1 I	.	609 IV	36 I	.	176 II	.	.	- I	- I	.	.
Omphalodes verna		.	30 I	.	108 I	.	.	.	1 I	106 I	1 I	1 I	.	.	.	5 III	.	.	.	.
Isopyrum thalictroides		.	15 I	16 I	24 I	.	.	2275 V	.	.	.	.	.	.	.	.	.	.	.	42 I
Cardamine kitaibelii		.	1 I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Euphorbia carniolica		.	1 I	1 I	.	3 II	19 II	.	.	.	.	.	.	.	.	2 II	.	.	.	.
Rhamnus fallax	IIa	.	1 I	1 I	.	1 I	.	.	.	- I	1 I	.	.	.	.	5 III	- I	1 I	.	.
	IIb	.	- -	- -	.	- -	.	.	.	- -	- -	.	.	.	.	46 III	- I	- -	.	.
Knautia drymeia s. lat.	III	.	.	.	.	.	.	.	.	1 I	.	.	.	3 II	1 I	3 III	57 II	- I	66 III	9 I
Anemone trifolia		.	.	.	.	.	.	.	.	.	1 I	.	.	.	138 III	140 IV	273 V	521 V	.	.
Cardamine waldsteinii		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	408 V	1553 IV

F_2 FAGETALIA SYLVATICAE Pawlowski1928

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Ia	6906 V	8235 V	7855 V	8274 V	8036 V	7302 V	7688 V	8000 V	7788 V	7383 V	7679 V	5250 V	6000 V	2035 V	7159 V	7336 V	7161 V	5313 V	7396 V
	Ib	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	319 IV	- -	- -	- -	- -
Fagus sylvatica	IIa	909 V	599 V	256 V	740 V	775 V	1053 V	5 III	119 IV	254 IV	231 V	789 V	277 III	1979 V	1251 V	455 V	613 V	299 IV	65 III	203 V
	IIb	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	3 II	- -	- -	- -	- -
	III	110 I	196 III	82 III	50 II	38 II	34 II	28 II	26 I	2 I	25 I	4 III	5 III	- -	- -	53 V	17 II	3 II	191 V	114 II
	I	2530 V	108 IV	529 IV	159 IV	42 IV	117 IV	1 I	54 III	60 II	14 III	39 II	- -	2 II	4751 V	5 IV	16 I	19 I	1251 V	118 III
Acer pseudoplatanus	II	161 IV	36 IV	268 IV	4 III	3 II	3 II	28 II	303 IV	63 IV	3 II	4 III	- -	7 IV	1001 V	3 III	3 II	2 II	472 V	203 IV
	III	126 II	122 IV	212 III	2 II	72 II	1 I	- -	53 II	80 III	28 III	3 II	7 IV	- -	- -	55 V	- -	1 I	131 V	147 II
Galium odoratum		1078 V	172 III	1198 IV	.	.	.	535 V	939 III	790 III	562 III	37 II	.	1 I	2156 V	.	.	.	2156 V	698 IV
Stellaria montana	III	783 V	15 I	.	.	.	.	452 IV	1 I	.	.	.	.	.	.	.	.	.	.	366 IV
Galeobdolon montanum		179 V	168 V*	229 V*	51 III*	.	54 II	.	217 IV*	159 V	.	.	.	105 IV	179 V	.	19 III*	147 IV*	908 V	513 IV
Polystichum aculeatum		161 V	33 III	54 II	.	2 II	18 I	3 II	22 II	20 I	2 II	39 III	6 IV	1 I	5 III	2 II	1 I	57 III	1 I	.
Scrophularia nodosa		39 V	1 I	5 II	.	.	2 I	.	5 III	3 II	2 II	.	.	.	5 III	.	.	.	4 III	.
Actaea spicata		8 V	18 II	2 I	.	1 I	6 IV	.	27 II	3 II	1 I	74 III	.	1 I	70 V	2 II	2 II	37 II	65 III	189 III
Mycelis muralis		8 V	6 IV	6 III	1 I	6 IV	2 II	28 II	30 III	45 IV	28 III	76 IV	4 III	.	3 II	1 III	82 III	41 IV	1 II	3 II
Ranunculus lanuginosus		114 IV	35 IV	201 III	1 I	.	53 II	93 IV	29 III	2 II	27 II	1 I	.	52 II	191 V	.	.	.	66 III	.
Epilobium montanum		8 IV	.	5 III			.	2 II	3 II	2 I	2 II	.	2 II	6 IV	70 V	.	1 I	.	63 IV	64 II
Milium effusum		294 III	1 I	.	.	.	36 I	6 III	62 II	.	.	.	.	.	126 III	.	.	.	626 V	595 III
Geranium robertianum		98 III	1 I	3 II	.	.	.	.	2 I	1 I	1 I	.	.	.	5 III	.	1 I	.	.	.
Adoxa moschatellina		96 III	15 I	30 III	.	.	20 II	28 II	55 III	.	1 I	.	.	1 I	6 IV	1 I	.	.	69 V	439 III
Paris quadrifolia		36 III	4 III	6 IV	2 II	5 III	4 III	59 V	555 IV	42 III	4 III	2 II	53 III	.	133 V	1 I	1 I	3 II	69 V	285 V
Carex sylvatica		5 III	63 III	56 III	26 II	.	.	57 IV	4 III	34 II	1 I	.	.	.	.	.	1 I	.	4 III	65 II
Daphne mezereum	II	4 III	8 V	29 II	31 IV	8 V	144 V	31 IV	29 III	4 III	28 III	77 IV	6 IV	156 V	130 V	141 V	36 III	39 III	.	21 I
Lunaria rediviva	III	297 II	.	.	.	.	.	.	.	.	.	.	.	.	438 II	.	.	.	.	.
Corydalis cava		203 II	.	.	.	.	34 I	216 III	375 I	.	.	.	.	.	.	.	.	.	.	.
Mercurialis perennis		172 II	553 IV	2 II	419 IV	449 V	383 V	.	190 II	368 IV	991 V	894 V	100 II	402 III	846 V	277 V	142 II	52 IV	125 V	115 I
Sanicula europaea		112 II	1 I	2 II	1 I	.	.	1 I	117 III	89 II	26 II	36 I	.	.	.	.	7 II	36 I	3 III	22 I
Cardamine pentaphyllos		111 II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Eurhynchium zetterstedtii	IV	111 II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.
Cardamine bulbifera	III	95 II	19 III	111 IV	26 II	2 II	5 III	317 V	104 III	98 II	50 III	37 II	.	1 I	.	.	.	.	.	397 III
Prenanthes purpurea		33 II	394 IV	108 III	101 IV	148 V	99 III	.	29 III	5 III	29 III	76 IV	4 III	1 I	284 III	276 V	52 III	74 III	69 IV	275 IV
Salvia glutinosa		32 II	.	.	.	.	.	.	1 I	2 I	4 III	1 I	.	.	1 I	1 I	152 III	3 II	.	.
Lilium martagon		3 II	1 I	5 III	2 II	.	56 III	.	28 II	4 III	4 III	.	2 II	4 III	5 III	5 IV	.	.	5 III	345 III
Aruncus dioicus		2 II	1 I	.	.	5 III	2 II	.	2 II	1 I	- I	38 II	2 II	.	128 III	1 I	.	.	.	- I
Lathyrus vernus		2 II	18 II	.	4 III	5 III	6 IV	.	52 II	.	1 I	.	.	.	.	.	.	.	.	.
Pulmonaria officinalis		2 II	.	.	.	.	.	.	2 I	5 III	1 I	.	.	.	.	.	1 I	.	1 I	.
Sambucus racemosa	II	2 II	.	.	.	.	.	.	.	.	.	.	.	.	3 II	- II	.	.	1 II	2 I
Viola reichenbachiana	III	1 II	16 II	2 II	.	.	.	.	2 I	2 I	1 I	38 II	.	.	.	2 II	7 IV	21 III	63 I	22 I
Petasites albus		235 I	.	.	.	.	.	.	27 II	1 I	3 II	2 II	.	.	.	.	18 II	.	1 I	43 II
Festuca altissima		110 I	12 II	1 I	24 I	3 II	.	.	.	20 I	1 I	37 II	.	2 II	.	.	.	.	1 I	625 II
Leucojum vernum		31 I	.	.	.	.	.	317 IV	.	.	.	.	.	.	.	.	.	.	4 III	584 II
Galium laevigatum		3 I	1 I	.	2 II	75 III	.	.	2 I	2 I	24 I	.	.	52 II	282 III	6 IV	2 II	1 I	.	.
Impatiens noli-tangere		1 I	.	27 I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3 III	22 II
Phyteuma spicatum		1 I	49 III	2 I	30 IV	79 V	92 IV	.	4 II	2 I	25 II	110 III	3 II	6 IV	.	.	2 I	19 I	5 III	63 I

Phyllitis scolopendrium		1 I	.	1 I	.	.	.	.	.	.	.	.	.	.	63 I	.	.	.	.	.
Poa nemoralis		1 I	.	.	.	.	.	.	.	.	.	.	.	8 V	3 II	.	.	.	.	.
Symphytum nodosum subsp. tuberosum		1 I	48 III	161 IV	3 II	4 III	143 V	181 V	252 IV	43 III	76 III	2 II	4 III	58 V	.	.	2 I	1 I	410 V	574 IV
Galeobdolon flavidum		.	168 V*	229 V*	51 III*	4 III	37 II	78 III	217 IV*	159 V*	100 IV	40 III	8 V	.	.	- I	19 III*	147 IV*	.	.
Euphorbia amygdaloides		.	64 IV	29 II	30 IV	6 IV	2 II	57 IV	315 IV	159 V	78 V	41 IV	7 IV	2 II	.	.	129 IV	95 IV	.	.
Lonicera alpigena	II	.	3 II	2 I	3 II	6 IV	109 V	.	29 III	2 II	29 III	39 III	4 III	204 V	346 IV	9 V	17 I	3 II	.	.
Allium ursinum	III	.	493 I	.	.	.	276 I	751 I	214 II	1221 II	.	.	.	.	.	.	.	.	.	.
Carex pilosa		.	235 I	.	383 II	36 I	18 I	.	.	.	.	.	.	.	.	.	.	.	.	.
Allium victorialis		.	1 I	.	83 I	.	477 III	.	.	.	.	.	.	.	.	.	.	.	.	.
Campanula trachelium		.	1 I	.	1 I	.	.	.	2 I	2 II	5 III	3 II	.	1 I	.	.	2 II	.	.	.
Euphorbia dulcis		.	1 I	.	.	.	1 I	.	.	.	.	.	.	.	.	.	.	.	.	.
Hordelymus europaeus		.	1 I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Melica nutans		.	1 I	.	.	.	1 I	.	.	2 I	.	.	2 II	1 I	5 III	5 III	91 III	58 III	.	94 I
Neottia nidus-avis		.	1 I	.	.	.	.	.	.	2 I	.	1 I	2 II	.	.	.	5 III	4 II	.	.
Veronica montana		.	.	3 II	.	.	.	4 II	27 II	.	.	.	.	.	.	.	.	.	.	136 II
Arum maculatum		.	.	1 I	.	.	.	.	.	2 I	.	.	.	.	.	.	.	.	.	.
Aquilegia nigricans		.	.	.	.	1 I	.	.	.	.	1 I	.	2 II	.	.	.	.	.	.	.
Ranunculus ficaria		.	.	.	.	.	.	29 III	.	.	.	.	.	.	.	.	.	.	.	.
Primula vulgaris		.	.	.	.	.	.	.	26 I	21 II	27 III	2 II	2 II	1 I	.	.	2 II	.	1 I	.
Epipactis helleborine		.	.	.	.	.	.	.	2 I	1 I	2 II	.	.	.	.	4 III	50 III	.	.	.
Polygonatum multiflorum		.	.	.	.	.	.	.	2 I	60 II	28 III	2 II	.	.	.	.	2 I	.	.	.
Stachys sylvatica		.	.	.	.	.	.	.	2 I	.	.	.	.	.	.	.	.	.	.	1 I
Gagea lutea		.	.	.	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.	.	.
Sambucus nigra	II	.	.	.	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.	.	3 II
Ulmus glabra	I	.	.	.	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.	.	.
	II	.	.	.	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.	.	.
Laburnum alpinum	I	.	.	.	.	.	.	.	.	- -	.	- -	- -	- -	.	5 IV	- -	- -	.	.
	II	.	.	.	.	.	.	.	.	1 I	.	1 I	2 II	1 I	.	3 II	17 I	2 II	.	.
	III	.	.	.	.	.	.	.	.	- -	.	- -	- -	- -	.	5 IV	- -	- -	.	.
Fraxinus excelsior	I	.	.	.	.	.	.	.	.	- I	- I	.	.	.	.	.	.	.	.	.
	II	.	.	.	.	.	.	.	.	- I	- -	.	.	.	.	.	.	.	.	.
	III	.	.	.	.	.	.	.	.	- -	1 I	.	.	.	.	.	.	.	.	.
Cephalanthera rubra		.	.	.	.	.	.	.	.	.	1 I	.	.	.	.	.	81 III	.	.	.
Cephalanthera damasonium		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	18 II	1 I	.	.
Asarum europaeum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	16 I	.	.	.
Brachypodium sylvaticum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.
Circaea lutetiana		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	115 I

Q_2 QUERCETALIA PUBESCENTIS Br.-Bl. (1931) 1932

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Camptothecium lutescens	IV	424 III	.	.	.	.	.	1 I	.	.	.	.	.	.	64 II	.	.	.	.	.
Sorbus aria	I	.	1 I	.	.	- -	1 I	.	.	.	.	- -	.	.	.	5 IV	16 I	1 I	.	.
	IIa	.	- I	.	.	4 II	2 I	.	.	.	.	39 III	.	.	.	5 IV	52 III	1 I	.	.
	IIb	.	- -	.	.	- -	- -	.	.	.	.	- -	.	.	.	3 III	- -	- -	.	.
	III	.	- -	.	.	- -	- -	.	.	.	.	- -	.	.	.	3 II	- -	- I	.	.
Melittis melissophyllum		.	.	.	1 I	.	.	.	.	.	1 I	.	.	.	.	1 I	2 II	.	.	.

	Hypericum montanum		.	.	.	.	.	3 II	.	.	2 I	1 I	.	.	5 III	.	.	.	.	.	.
	Ostrya carpinifolia	I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.	.
		II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.	.
	Fraxinus ornus	I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- -	16 I	.	.	.
		II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	33 II	.	.	.
		III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3 II	- -	.	.	.
RP$_2$	QUERCETALIA ROBORIS Br.-Bl. 1932																				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Polypodium vulgare	III	.	.	.	.	.	.	.	2 II	.	.	.	.	.	.	.	1 I	.	.	.
	Betula verrucosa	I	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.
	Festuca heterophylla	III	.	.	.	.	.	.	.	.	.	.	.	.	3 II	.	.	.	.	.	.
	Frangula alnus	II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.	.
	Pteridium aquilinum	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	74 III	.	.	.
	Melampyrum pratense subsp. vulgatum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	33 II	.	.	.
	Veronica officinalis		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	2 I	.	23 II
PS	PRUNETALIA SPINOSAE R. Tx. 1952																				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Berberis vulgaris	II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.
	Clematis vitalba		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.
	Crataegus monogyna		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.
	Ribes uva-crispa subsp. lasiocarpum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	21 I
C	CARPINION Issler 1931 em. Oberd. 1957																				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Stellaria nemorum	III	- I	.	778 V	.	.	96 II	28II	289 III	.	.	.	.	54 III	751 V	.	.	.	1235 V	.
	Galium aristatum		.	.	.	.	.	1 I	.	.	.	.	.	.	103 III	.	.	.	.	.	.
	Stellaria holostea		.	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.	.	.	.	.
	Anemone ranunculoides		.	.	.	.	.	.	3 II	26 I	.	.	.	.	.	.	.	.	.	.	.
	Scilla bifolia		.	.	.	.	.	.	2 II	.	.	.	.	.	.	.	.	.	.	.	.
	Galium schultesii		.	.	.	.	.	.	.	.	.	2 II	1 I	.	.	126 III	.	.	.	.	.
F$_3$	QUERCO-FAGETEA Br.-Bl. & Vlieger in Vlieger 1937																				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Ctenidium molluscum	IV	440 V	.	31 III	.	215 III	.	53 III	78 III	63 IV	76 IV	629 V	204 V	9 V	69 V	54 V	.	.	.	.
	Isothecium myosuroides		394 IV	.	30 III	.	40 III	.	55 III	.	.	.	.	.	3 II	1 I	.	.	.	.	.
	Anemone nemorosa	III	34 II	.	568 V	467 V	324 V	2846 V	726 IV	441 V	42 III	230 IV	324 III	56 IV	720 V	.	49 III	.	.	3 II	708 V
	Lonicera xylosteum	II	2 II	144 V	.	.	.	.	.	.	2 I	2 II	38 II	.	.	1 I	.	2 II	2 I	.	21 I
	Carex digitata	III	1 I	.	.	2 II	.	.	.	.	3 II	26 II	40 III	53 III	3 II	1 I	4 III	38 IV	6 IV	.	.
	Helleborus odorus		.	1 I	.	.	.	.	2 II	.	1 I	25 I	.	.	.	.	.	.	.	.	.
	Convallaria majalis	III	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.	5 III	.	.	.	.
	Hepatica nobilis		.	.	.	.	.	.	.	3 II	4 III	5 III	201 IV	54 III	.	.	187 V	50 III	41 IV	.	.
	Corylus avellana	II	.	.	.	.	.	.	.	1 I	.	24 I	2 II	.	.	.	.	2 II	1 I	.	.
	Platanthera bifolia	III	.	.	.	.	.	.	.	.	2 I	.	.	.	.	.	.	2 II	1 I	.	.
	Melica uniflora		.	.	.	.	.	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.

LF	Luzula nivea		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3 I	.	.	.
	Quercus petraea	I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.
		II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.
LF	Pulmonaria stiriaca	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	83 I
	Moehringia trinervia		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	21 I
	Fragaria moschata		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I
VP_3	VACCINIO-PICEETEA Br.-Bl. in Br.-Bl. et al. 1939 em. Zupančič 2000																				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Oxalis acetosella	III	846 V	201 V	764 V	180 III	112 IV	73 III	714 V	952 V	252 III	264 III	181 IV	576 V	206 V	4 III	3 II	36 III	502 V	1567 V	1855 V
	Gentiana asclepiadea		68 IV	4 III	2 II	6 III	7 IV	5 III	7 IV	30 III	3 II	7 IV	41 IV	5 III	7 IV	9 V	53 V	2 I	20 II	9 V	86 III
	Adenostyles glabra		393 III	554 IV	54 II	1143 IV	556 V	124 III	728 V	367 IV	45 IV	348 III	414 IV	1579 V	504 V	8 V	141 V	17 I	19 I	3 II	305 III
		I	360 III	16 I	34 II	50 III	39 III	1 I	32 IV	29 III	435 III	228 II	184 V	704 V	352 III	65 III	- II	1189 IV	646 V	2032 V	275 IV
	Picea abies	II	2 II	5 III	2 I	3 II	2 II	-1	82 V	3 II	243 III	134 III	75 III	53 III	2 II	4 III	- II	394 V	183 IV	224 V	5 III
		III	- -	1 I	- -	- -	- -	- -	29 I	- -	1 I	1 I	- -	2 II	- -	- -	- I	2 II	1 I	4 III	- I
	Dryopteris expansa ? D. dilatata		5 III	1 I	.	.	.	19 I	2 II	4 II	.	.	36 I	.	3 II	3 II	.	.	.	8 V	94 I
	Calamagrostis arundinacea		110 II	.	.	464 II	.	.	.	.	.	.	.	.	.	68 IV	297 III	.	.	66 III	21 I
		I	32 II	16 I	2 I	1 I	2 II	.	.	1 I	22 II	26 II	36 I	53 III	.	.	45 II	18 II	3 II	252 V	879 V
	Abies alba	II	1 I	3 II	1 I	1 I	1 I	.	.	- -	2 I	24 I	1 I	51 II	.	.	1 I	32 II	21 II	68 V	86 III
		III	- -	2 II	1 I	1 I	1 I	.	.	2 I	1 I	- -	- -	2 II	.	.	1 I	- -	1 I	128 III	44 II
	Luzula sylvatica subsp. sylvatica	III	32 II	113 II	29 II	75 III	504 IV	305 V	25 I	25 I	1 I	25 I	73 II	57 V	503 V	1 I	1 I	.	109 III	69 V	189 II
	Mnium spinosum	IV	3 II	.	.	.	.	.	.	.	.	.	.	.	.	5 III	.	.	.	.	.
	Peltigera leucophlebia		3 II	.	.	.	.	.	.	.	.	.	.	.	.	4 III	.	.	.	1 I	.
	Lonicera nigra	II	2 II	1 I	.	.	.	35 I	.	.	.	.	.	.	1 I	3 II	1 I	.	.	1 II	- I
	Rosa pendulina		2 II	2 II	.	6 IV	109 IV	90 III	.	1 I	2 I	2 II	40 III	3 II	4 III	132 V	101 IV	18 II	3 II	.	- I
	Aposeris foetida	III	110 I	111 I	119 III	682 IV	1 I	121 V	217 IV	6 IV	102 IV	218 V	556 III	478 V	2175 V	69 V	93 III	35 III	343 IV	.	.
	Gymnocarpium dryopteris		1 I	.	.	.	.	19 II	43 III	1 I	.	.	2 II	104 IV	3 II	.	51 III	.	38 II	3 II	220 III
	Phegopteris connectilis		1 I	.	.	.	.	.	.	.	.	.	.	.	.	1 I	139 III	2 I	22 III	3 II	42 I
	Valeriana tripteris		1 I	2 II	.	3 II	27 V	76 V	.	51 I	2 II	51 V	169 V	230 IV	204 V	8 V	233 V	18 II	40 III	.	.
	Veronica urticifolia		1 I	3 II	.	5 III	44 V	7 III	2 I	29 III	.	4 III	78 V	156 V	107 V	66 III	6 IV	51 III	42 IV	.	.
	Maianthemum bifolium		.	18 II	27I	27II	40 III	3 II	3 II	5 III	.	.	3 II	3 II	2 II	.	6 IV	3 II	3 II	.	.
	Laserpitium krapfii		.	16 I	.	.	.	1 I	.	.	.	.	.	.	.	.	.	.	.	.	.
	Dryopteris carthusiana		.	1 I	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	109 IV
	Homogyne sylvestris		.	1 I	.	108 II	769 V	141 III	1 I	.	.	.	1340 V	102 III	277 III	.	142 V	1 I	315 IV	.	.
	Luzula luzuloides		.	1 I	2 I	1 I	.	.	3 II	2 I	71 III	29 III	1 I	5 III	6 IV	.	1 II	32 I	.	1 I	.
	Polystichum lonchitis		.	1 I	1 I	3 II	76 IV	160 V	.	129 IV	.	1 I	37 II	9 V	157 V	129 IV	1 III	2 II	76 III	.	.
	Rubus hirtus	II	.	1 I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	23 II
	Solidago virgaurea	III	.	1 I	.	2 II	.	2 II	.	.	.	1 I	1 I	.	3 II	1 I	7 IV	19 II	1 I	3 II	21 I
	Vaccinium myrtillus		.	1 I	1 I	3 II	38 II	183 II	.	.	2 I	.	36 I	4 III	6 IV	3 II	345 V	35 IV	42 IV	1 I	.
	Grimmia pulvinata	IV	.	.	1 I	.	.	.	.	.	.	.	.	2 II	.	.	2 II	.	.	.	.
	Rubus saxatilis	II	.	.	.	2 II	3 II	38 III	.	.	.	.	2 II	.	7 IV	64 III	186 V	19 II	2 II	.	.
	Clematis alpina	II	.	.	.	1 I	4 III	20 II	.	.	1 I	- I	4 III	3 II	1 I	.	139 IV	1 I	3 II	.	.
	Huperzia selago	III	.	.	.	.	2 II	1 I	.	.	.	.	.	.	1 I	.	140 IV	.	1 I	.	.
	Hieracium sylvaticum		.	.	.	.	1 I	1 I	.	1 I	.	27 III	16 IV	54 III	5 III	.	6 IV	375 IV	94 IV	.	43 II
	Rhododendron hirsutum	II	.	.	.	.	1 I	191 III	.	.	.	- I	.	1 I	7 IV	.	3296 V	.	1 I	.	.
	Pinus mugo		.	.	.	.	.	3 II	.	.	.	.	.	.	.	.	- II	.	.	.	.

Sorbus chamaemespilus		.	.	.	.	.	18 I	.	.	.	.	.	.	.	68 IV	.	.	.	.	.
Lonicera caerulea		.	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.	.	.	.	.
Vaccinium vitis-idaea	III	.	.	.	.	.	1 I	.	.	.	.	.	.	1 I	.	5 III	63 II	2 II	.	.
Saxifraga cuneifolia		.	.	.	.	.	.	.	2 II	.	.	2 II	154 IV	3 II	.	.	33 II	40 III	.	.
Luzula pilosa		.	.	.	.	.	.	.	1 I	1 I	.	.	.	.	.	.	1 I	1 I	5 IV	139 III
Hypnum cupressiforme	IV	.	.	.	.	.	.	.	.	2 I	2 II	.	.	3 II	.	2 II	.	.	.	.
Larix decidua	I	.	.	.	.	.	.	.	.	2 I	.	36 I	1400 V	.	.	.	64 II	1903 V	.	.
	II	.	.	.	.	.	.	.	.	- -	.	- -	1 I	.	.	.	- -	- -	.	.
Senecio abrotanifolius	III	.	.	.	.	.	.	.	.	- I	.	.	1 I	.	.	- I	.	21 II	.	.
Polytrichum formosum	IV	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.	345 V	.	.	.	.
Dicranum scoparium		.	.	.	.	.	.	.	.	.	- I	.	2 II	3 II	.	5 III	.	.	.	.
Homogyne alpina	III	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.	.	.	.	.
Pyrola minor		.	.	.	.	.	.	.	.	.	.	.	.	3 II	.	.	.	.	.	.
Sorbus aucuparia var. glabrata	II	.	.	.	.	.	.	.	.	.	.	.	.	.	5 III	.	.	.	.	.
	III	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.	.
Laserpitium peucedanoides		.	.	.	.	.	.	.	.	.	.	.	.	.	.	94 IV	.	.	.	.
Leucobryum glaucum	IV	.	.	.	.	.	.	.	.	.	.	.	.	.	.	164 III	.	.	.	.
Rhodothamnus chamaecistus	II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	49 III	.	.	.	.
Calamagrostis villosa	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.	.
Rhytidiadelphus triquetrus	IV	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.	.
Atrichum undulatum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.
Hylocomium splendens		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.
Lycopodium annotinum	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.
Rhizomnium punctatum	IV	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.
Monotropa hypophegea	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.	.
Melampyrum sylvaticum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	18 II	20 II	4 III	- I
Orthilia secunda		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	18 II	3 II	.	.
Circaea alpina		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	47 I
Galium rotundifolium		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I
Hieracium rotundatum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I
Moneses uniflora		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I
Solidago virgaurea subsp. minuta (=S. alpestris)		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I

EP_3 ERICO-PINETEA Ht. 1959

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Calamagrostis varia	III	174 III	32 II	.	.	644 V	537 V	.	89 II	70 II	919 IV	1057 IV	477 III	225 IV	4 III	503 V	509 III	146 III	.	.
Cirsium erisithales		1 I	33 II	1060 III	29 III	8 V	23 IV	.	.	.	3 II	1 I	.	1 I	131 V	97 V	3 II	1 I	.	.
Carex alba		.	.	.	24 I	1 I	.	.	.	20 I	73 II	163 II	100 II	.	.	50 III	700 III	65 II	.	.
Erica carnea		.	.	.	.	.	.	.	.	.	357 I	.	3 II	.	.	143 V	33 II	.	.	.
Buphthalmum salicifolium		.	.	.	.	.	.	.	.	.	1 I	.	.	.	4 III	5 III	18 II	.	.	.
Epipactis atrorubens		.	.	.	.	.	.	.	.	.	1 I	.	.	.	.	.	.	1 I	.	.
Polygala chamaebuxus	III	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.	4 III	66 III	.	.	.
Allium ochroleucum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	3 III	.	.	.	.
Cotoneaster tomentosus	II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	1 I	.	.	.
Pinus nigra	I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- II	.	.	.	.
	II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- II	.	.	.	.

Amelanchier ovalis		.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.	.
Pinus sylvestris	I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	212 II	.	.	.
Pyrola chlorantha	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	20 II	.	.

A_3 BETULO-ADENOSTYLETEA Br.-Bl. & R. Tx. 1943 s. lat. (=MULGEDIO-ACONITETEA Klika 1944)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Dryopteris filix-mas	III	1675 V	64 IV	938 V	3 II	39 II	82 III	131 V	131 V	82 IV	112 IV	40 III	6 IV	57 IV	.	1635 V	18 II	5 III	473 V	387 IV
Senecio ovatus		879 V	313 V	522 V	28 III	3 II	122 II	396 V	293 V	225 IV	254 IV	13 II	7 IV	605 V	1844 IV	2 II	1 I	1 I	973 V	388 IV
Athyrium filix-femina		877 V	6 IV	109 III	30 IV	3 II	37 II	380 V	392 V	82 IV	27 II	2 II	231 V	103 III	532 V	50 III	35 III	24 IV	1564 V	897 V
Rubus idaeus	II	348 V	4 III	335 IV	2 II	4 II	.	92 III	139 II	21 II	27 III	.	2 II	52 II	348 V	1 I	1 I	.	349 V	440 IV
Polygonatum verticillatum	III	68 IV	196 V	110 IV	103 V	43 V	76 V	81 IV	366 V	84 V	149 V	147 IV	253 V	104 IV	252 V	4 III	2 II	23 III	8 V	253 IV
Saxifraga rotundifolia		34 IV	2 II	29 II	- I	3 II	72 III	3 II	28 II	1 I	.	38 III	228 III	402 V	194 V	.	16 I	1 I	63 I	.
Adenostyles alliariae		455 III	31 I	1370 III	25 II	.	17 I	754 V	.	20 I	- I	.	2 II	850 III	422 IV	.	.	.	473 III	.
Chrysosplenium alternifolium		253 III	.	28 II	.	.	.	3 II	2 I	.	.	.	.	.	65 III	.	.	.	1 I	1 I
Veratrum album subsp. lobelianum		134 III	167 V*	.	.	.	.	.	.	.	.	.	.	2 II	129 IV	.	.	19 I	.	398 III*
Myosotis sylvatica		67 III	1 I	4 III	.	.	.	.	.	.	2 II	.	.	5 III	131 III	.	.	.	.	- I
Doronicum austriacum		34 III	16 I	3 II	.	1 I	142 III	.	.	.	1 I	.	.	5 III	845 V	.	.	.	349 V	63 II
Cicerbita alpina		34 II	2 II	3 II	1 I	1 I	36 II	1 I	2 II	.	.	1 I	2 II	2 I	754 V	.	.	.	346 IV	200 IV
Heracleum sphondylium subsp. sphondylium		34 II	18 II	2 I	4 III	2 II	22 III	.	2 I	2 II	2 II	.	.	3 II	282 II	.	.	.	.	.
Ranunculus platanifolius		3 II	106 III	5 III	30 IV	76 IV	108 IV	55 IV	4 II	5 III	51 III	109 III	53 III	7 IV	68 IV	.	.	.	4 III	115 II
Deschampsia caespitosa		2 II	.	.	.	.	.	.	.	.	.	.	.	1 I	1 I	.	.	.	286 V	4 II
Veratrum album subsp. album		2 II	167 V*	280 IV	385 V	254 V	529 V	268 V	428 IV	4 II	160 IV	39 II	10 V	251 V	.	3 III	.	.	4 III	398 III*
Aconitum lycoctonum subsp. ranunculifolium	III	32 I	1 I	1 I	.	.	5 III	.	.	.	.	.	.	.	656 III	.	.	19 I	.	.
Aconitum degenii subsp. paniculatum		1 I	.	.	.	.	.	.	.	.	2 II	.	.	.	846 V	.	.	.	.	.
Aconitum lycoctonum subsp. vulparia		1 I	.	.	.	2 II	.	.	.	.	.	.	.	6 IV	66 III	1 I	.	.	.	- I
Crepis paludosa		1 I	.	.	.	.	.	.	.	.	.	.	.	102 III	131 V	.	.	.	- I	9 I
Heracleum montanum subsp. montanum		1 I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ribes alpinum	II	1 I	1 I	.	.	.	20 II	1 I	.	.	.	.	.	2 II	4 III	.	.	.	.	.
Geranium sylvaticum	III	.	.	1 I	.	.	4 III	.	.	.	.	.	.	2 II	8 V	.	.	1 I	.	.
Anthriscus nitida		.	.	.	2 II	.	2 I	77 II	115 II	.	2 II	.	.	154 IV	.	.	.	.	.	.
Salix appendiculata	II	.	.	.	.	.	2 II	.	.	.	.	.	.	.	69 V	2 II	.	.	.	.
Ribes petraeum		.	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.	.	.	.	.
Viola biflora	III	.	.	.	.	.	1 I	.	.	- I	.	.	2 II	58 V	128 III	3 II	19 I	.	65 III	.
Salix waldsteiniana	II	.	.	.	.	.	.	.	.	.	.	.	.	5 III	.	.	.	.	.	.
Salix glabra		.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	1 II	.	.	.	.
Rumex alpestris (=R. arifolius)	III	.	.	.	.	.	.	.	.	.	.	.	.	.	191 V	.	.	.	4 III	.
Senecio cacaliaster		.	.	.	.	.	.	.	.	.	.	.	.	.	563 III	.	.	.	.	.
Phyteuma ovatum		.	.	.	.	.	.	.	.	.	.	.	.	.	4 III	.	.	.	.	.

E EPILOBIETEA ANGUSTIFOLII R. Tx. & Prsg. 1950

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Galeopsis speciosa	III	38 II	.	.	.	.	.	.	2 I	.	.	.	.	.	.	.	.	.	.	116 I
Fragaria vesca		.	4 II	1 I	2 II	.	1 I	6 III	.	22 II	3 II	.	.	3 II	.	1 I	6 III	23 III	.	- I
Bromus ramosus		.	.	.	.	.	.	.	1 I	3 II	1 I	.	.	.	.	.	.	.	.	.
Digitalis grandiflora		.	.	.	.	.	.	.	.	2 I	1 I	2 II	.	4 III	.	.	2 II	20 II	.	.
Verbascum densiflorum (=V. thapsiforme)		.	.	.	.	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.	.

	Verbascum nigrum		.	.	.	.	.	.	.	.	.	.	.	.	52 II	.	.	.	.	.	.
	Eupatorium cannabinum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	1 I	.	.	.
	Salix caprea	I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.
		II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.
TG	TRIFOLIO-GERANIETEA SANGUINEI Th. Müller 1961																				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Cruciata glabra		.	.	44 I	.	.	.	.	.	.	.	.	.	.	.	.	2 III	.	.	.
	Campanula persicifolia		.	.	.	.	.	.	.	.	.	.	.	.	4 III	.	.	.	.	.	.
	Laserpitium latifolium		.	.	.	.	.	.	.	.	.	.	.	.	.	4 III	.	.	.	.	.
	Vincetoxicum hirundinaria		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.
	Brachypodium rupestre		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 I	.	.	.
	Clinopodium vulgare		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 I	.	.	.
	Hypericum perforatum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I
S	SESLERIETEA Br.-Bl. 1948 em. Oberdorfer 1978																				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Carex ferruginea	III	.	.	.	1 I	.	29 III	.	.	- I	.	.	.	57 IV	.	188 V	.	.	.	.
	Allium victorialis		.	1 I	.	83 I	.	477 III	.	.	.	.	.	.	.	.	.	.	.	.	.
	Sesleria albicans		.	.	.	.	.	.	.	.	.	24 I	.	.	.	.	301 V	.	.	.	.
	Astrantia major		.	.	.	.	.	.	.	.	.	1 I	.	3 II	.	.	.	.	.	.	.
	Astrantia carniolica		.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	2 III	.	.	.	.
	Centaurea montana		.	.	.	.	.	.	.	.	.	.	.	.	105 IV	.	.	.	.	.	.
	Betonica alopecuros		.	.	.	.	.	.	.	.	.	.	.	.	.	.	50 III	19 II	.	.	.
	Aster bellidiastrum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	3 II	.	.	.	.
	Carex firma		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 II	.	.	.	.
	Campanula scheuchzeri		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	1 I	.	.	.
	Hieracium villosum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.
	Gentiana clusii		.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.	.
FB	FESTUCO-BROMETEA Br.-Bl. & R. Tx. 1943																				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Orchis mascula	III	.	.	.	.	.	.	.	.	.	.	.	51 II	.	.	.	.	.	.	.
	Galium lucidum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.	.
	Carex humilis		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.
	Lotus corniculatus		.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	1 I	.	.	.
	Cirsium acaule		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.
	Pimpinella saxifraga		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.
	Teucrium chamaedrys		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.
MA	MOLINIO-ARRHENATHERETEA R. Tx. 1937																				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Chaerophyllum villarsii (=C. hirsutum)	III	174 III	.	.	.	.	69 I	2 I	.	.	.	.	.	52 III	505 V	.	.	.	5 III	- I
	Geum rivale		1 I	.	.	.	.	.	.	.	.	.	.	.	56 IV	131 V	.	.	.	.	.
	Thalictrum aquilegiifolium		1 I	.	.	.	2 II	3 II	.	.	.	1 I	3 II	.	4 III	132 V	1 I	.	.	66 III	- I
	Angelica sylvestris		.	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.	.	.	.	.

	Trollius europaeus		.	.	.	.	.	1 I	.	.	.	.	.	.	.	.	.	.	.	.	.
	Crocus vernus		.	.	.	.	.	.	489 IV	.	.	.	.	.	.	.	.	.	.	.	.
	Ajuga reptans		.	.	.	.	.	.	.	2 I	2 I	.	.	.	.	.	.	2 II	.	.	- I
	Carex flacca		.	.	.	.	.	.	.	.	1 I	1 I	.	.	.	.	.	18 II	.	.	.
	Poa annua		.	.	.	.	.	.	.	.	.	.	.	3 II	.	.	.	.	.	.	.
	Molinia arundinacea		.	.	.	.	.	.	.	.	.	.	.	.	.	.	4 III	.	.	.	.
	Carex brizoides		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I
SC	SCHEUCHZERIO-CARICETEA FUSCAE (Nordh. 1936) R. Tx. 1937																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Dactylorhiza maculata	III	.	.	1 I	1 I	2 I	.	.	.	.	.	.	.	.	.	.	.	.	.	21 I
	Parnassia palustris		.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.	.
	Pinguicula alpina		.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.	.
ART	ARTEMISIETEA Lohm., Prsg. & R. Tx. in R. Tx. 1950																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Urtica dioica	III	389 V	.	.	.	.	.	.	.	.	.	.	.	1 I	190 IV	.	.	.	65 III	.
	Myrrhis odorata		33 II	.	.	.	.	.	.	.	.	.	.	.	.	910 V	.	.	.	.	.
	Silene dioica (=Mulgedium rubrum)		2 II	.	.	.	.	.	.	.	.	.	.	.	.	8 V	.	.	.	6 IV	1 I
	Aegopodium podagraria		.	1 I	.	.	.	.	.	1 I	.	1 I	.	.	.	.	.	.	.	.	.
	Galeopsis pubescens		.	.	27 I	.	.	.	.	.	.	.	.	.	.	6 IV	.	.	.	4 III	22 I
	Lamium maculatum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	43 I
TH	THLASPIETEA ROTUNDIFOLII Br.-Bl. et al. 1947																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Gymnocarpium robertianum	III	.	.	.	.	.	.	.	.	- I	.	.	.	.	.	9 V	1 I	.	.	.
	Campanula cespitosa		.	.	.	.	.	.	.	.	.	.	.	.	.	.	7 IV	.	.	.	.
	Aquilegia bertolonii		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 II	.	.	.	.
	Carduus crassifolius		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.
	Campanula cochleariifolia		.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.	.
	Hieracium bifidum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.	.
AS	ASPLENIETEA TRICHOMANIS Br.-Bl. in Meier & Br.-Bl. 1934 corr. Oberd. 1977 s. lat.																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Cystopteris fragilis	III	4 III	1 I	1 I	.	1 I	4 III	3 II	1 I	.	.	.	4 III	5 III	69 V	- I	1 I	.	.	.
	Asplenium trichomanes		.	1 I	.	.	4 II	.	.	1 I	2 I	1 I	.	.	.	.	- I	1 I	.	.	.
	Asplenium viride		.	1 I	1 I	.	5 III	4 III	.	.	.	1 I	.	7 IV	7 IV	.	9 V	2 II	5 III	.	.
	Moehringia muscosa		.	.	.	.	3 II	2 I	.	.	.	.	1 I	.	.	.	.	4 II	5 III	.	.
	Asplenium ruta-muraria		.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	4 III	.	.	.	.
	Paederota lutea		.	.	.	.	.	.	.	.	.	.	.	.	.	.	144 V	.	.	.	.
	Phyteuma scheuchzeri subsp. columnae		.	.	.	.	.	.	.	.	.	.	.	.	.	.	8 V	.	.	.	.
	Valeriana saxatilis		.	.	.	.	.	.	.	.	.	.	.	.	.	.	49 III	.	.	.	.
	Primula carniolica		.	.	.	.	.	.	.	.	.	.	.	.	.	.	3 III	.	.	.	.
	Athamanta turbith		.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.	.
	Cystopteris montana		.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.	.
	Potentilla caulescens		.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.	.

	Primula auricula		.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.	.
	Saxifraga crustata		.	.	.	.	.	.	.	.	.	.	.	.	.	.	- I	.	.	.	.
O	OTHER SPECIES (Ostale vrste)																				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Sorbus aucuparia subsp. aucuparia	Ia	33 II	- -	- -	- -	.	2 I	- -	- -	.	.	- -	- -	.	- -	1 I	- -	- -	473 IV	1 I
		Ib	- -	- -	- -	- -	.	- -	- -	- -	.	.	- -	- -	.	- -	2 I	- -	- -	- -	- -
		II	36 III	4 III	29 II	3 II	.	3 II	2 II	2 II	.	.	40 III	2 II	.	63 II	4 III	33 II	1 I	129 IV	87 III
		III	- -	- -	- -	- -	.	- -	- -	- -	.	.	- -	- -	.	- -	6 V	- -	- -	63 I	- -
	Rumex acetosella s.lat.		- I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Campanula rotundifolia		.	.	.	.	1 I	3 II	.	.	.	.	.	.	.	.	.	.	.	.	.
	Rubus sp.	II	.	.	.	.	.	.	.	.	2 I	2 II	.	.	.	.	.	.	.	.	.
	Potentilla erecta	III	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	17 I	.	.	.
	Ajuga pyramidalis		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.
	Poa sp.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.
ML	MOSSES AND LICHENS (Mahovi in lišaji)																				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Taxiphyllum depressum	IV	6 IV	.	.	.	.	.	.	.	.	.	.	.	.	3 II	.	.	.	3 II	.
	Plagiochila asplenioides		97 III	.	.	.	.	.	2 II	2 II	.	2 II	4 II	52 II	3 II	4 III	4 III	.	.	4 III	.
	Anomodon attenuatus		67 III	.	.	.	.	.	.	.	.	.	.	.	.	743 V	.	.	.	.	.
	Tortella tortuosa		.	16 I	1 I	.	4 II	.	.	1 I	20 I	1 I	1 I	4 III	6 IV	.	98 V	.	.	.	.
	Fissidens taxifolius		.	.	1 I	.	3 II	.	.	3 II	.	1 I	39 III	56 IV	3 II	.	.	.	.	.	.
	Isothecium alopecuroides		.	.	.	.	.	.	.	29 III	2 I	25 II	3 II	3 II	.	.	1 I	.	.	.	.
	Neckera crispa		.	.	.	.	.	.	.	1 I	.	.	36 I	.	.	.	52 IV	.	.	.	.
	Metzgeria furcata		.	.	.	.	.	.	.	.	.	1 I	37 II	.	.	.	.	.	.	.	.
	Brachythecium rutabulum		.	.	.	.	.	.	.	.	.	.	36 I	.	.	.	.	.	.	.	.
	Mnium undulatum		.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.	.	.
	Fissidens cristatus		.	.	.	.	.	.	.	.	.	.	.	.	.	.	51 IV	.	.	.	.
	Bartramia sp.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.	.
	Conocephalum conicum		.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.	.
	Dicranum sp.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.	.
	Mnium sp.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.	.
	Orthothecium rufescens		.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.	.
	Paraleucobryum sauteri		.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 II	.	.	.	.
	Peltigera canina		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 II	.	.	.	.
	Bryum sp.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.
	Encalypta sp.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.
	Hookeria lucens		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.
	Marchantia polymorpha		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.
	Metzgeria sp.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 I	.	.	.	.

LEGEND (Legenda)
Analitical table (Analitična tabela)

1 STELLARIO MONTANAE-FAGETUM (Zupančič 1969) Marinček et al. 1993
2 RANUNCULO PLATANIFOLII-FAGETUM Marinček 1993 corr. Zupančič & Žagar 2011 var. geogr. CALAMINTHA GRANDIFLORA Marinček 1996 TYPICUM Marinček & Čarni 2010
3 STELLARIETOSUM NEMORUM Marinček & Čarni 2010
4 CALAMAGROSTIDETOSUM Marinček & Čarni 2010 & HACQUETIETOSUM Marinček & Čarni 2010
5 HOMOGYNETOSUM Marinček & Čarni 2010
6 var. ALLIUM VICTORIALIS (Marinček 1995), POLYSTICHETOSUM (Marinček 1992) Zupančič & Žagar 2011 (Polysticho lonchitis-Fagetum Marinček 1992)
7 var. geogr. ISOPYRUM THALICTROIDES (Košir 1979) Marinček 2004, TYPICUM Marinček & Čarni 2010 & STELLARIETOSUM MONTANAE Marinček & Čarni 2010
8 var. geogr. TYPICA Marinček & Čarni 2010 TYPICUM Marinček & Čarni 2010 & STELLARIETOSUM MONTANAE Marinček & Čarni 2010
9 HELLEBORETOSUM NIGRAE Marinček & Čarni 2010
10 CALAMAGROSTIDETOSUM Marinček & Čarni 2010 & HACQUETIETOSUM Marinček & Čarni 2010
11 HOMOGYNETOSUM Marinček & Čarni 2010
12 LARICETOSUM Marinček & Čarni 2010
13 var. SALIX WALDSTEINIANA (Marinček 1985) Zupančič & Žagar 2011, POLYSTICHETOSUM (Marinček 1992) Zupančič & Žagar 2011 (Polysticho-Fagetum Marinček 1992)
14 ACONITO PANICULATI-FAGETUM (Zupančič 1969) Marinček et al. 1992
15 RHODODENDRO HIRSUTI-FAGETUM Dakskobler 1998 var. geogr. Anemone trifolia Dakskobler 1998 subvar. geogr. Omphalodes verna Dakskobler 1998
16 ANEMONO-FAGETUM Tregubov 1962 var. geogr. HELLEBORUS NIGER Marinček et al. 1989 & TYPICUM Marinček et al. 1989
17 HOMOGYNETOSUM (Košir 1957) Marinček et al. 1989 & LARICETOSUM (Tregubov 1962) Marinček et al. 1989
18 CARDAMINE WALDSTEINII-FAGETUM Ž. Košir 1962 var. ABIES ALBA (Zupančič 1969) Ž. Košir 1979 (Aceri-Fagetum pohoricum Zupančič 1969)
19 (Savensi-Fagetum Ž. Košir 1962)

Bedrock (Geološka podlaga)
a amphibolite (amfibolit)
apn limestone (apnenec)
b micashist (blestnik)
da dolomitic limestone (dolomitni apnenec)
dol dolomite (dolomit)
gd granodiorite (granodiorit)
m m metamorphic and igneous rock (metamorfne in magmatske kamnine)
apn r limestone with cherts (apnenec z roženci)

Sinsistematical characteristic (Sinsistematska pripadnost)
LF Luzulo-Fagenion