CALCAREOUS OPEN SEDGE SWARDS AND STONY GRASSLANDS (*SESLERIETALIA CAERULEAE*) ON THE NORTHERN EDGE OF THE TRNOVSKI GOZD PLATEAU (THE DINARIC MOUNTAINS, WESTERN SLOVENIA)

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Abstract
Applying the standard Central-European phytosociological method we studied the open sedge swards and stony grasslands on the northern edge of the Trnovski gozd plateau in western Slovenia. Based on extensive comparisons with similar communities in the Southeastern Alps and in the northern part of the Dinaric mountains we classified the studied communities into the order *Seslerietalia caeruleae* Br.-Bl. in Br.-Bl. & Jenny 1926. They are differentiated from similar communities in the Southeastern Alps by certain northern-Illyrian endemics (above all by *Primula carniolica* and *Hladnikia pastinacifolia*) and by some of the southern or southeastern-Alpine-Illyrian species (e.g. *Phyteuma scheuchzeri* subsp. *columnae*, *Astrantia carniolica* and *Aquilegia bertolonii*). This article describes these communites as the following new syntaxa: *Primulo carniolicae-Seslerietum calcariae*, *Primulo carniolicae-Caricetum firmae*, *Caricetum mucronatae* var. geogr. *Primula carniolica* and *Caricetum ferrugineae* var. *Astrantia carniolica*.
Key words: *Caricion firmae*, *Caricion austroalpinae*, *Caricion ferrugineae*, phytogeography, phytosociology, syntaxonomy, the Trnovski gozd plateau, Slovenia

Izvleček
Po standardni srednjeevropski fitocenološki metodi smo preučili blazinasto rastje in kamnita travišča na severnem robu Trnovskega gozda v zahodni Sloveniji. Na podlagi obsežnih primerjav s podobnimi združbami v Jugovzhodnih Alpah in v severnem delu Dinarskega gorstva preučene združbe uvrščamo v red *Seslerietalia caeruleae* Br.-Bl. in Br.-Bl. & Jenny 1926. Od podobnih združb v Jugovzhodnih Alpah jih razlikujejo nekateri severnoilirski endemiti (predvsem *Primula carniolica* in *Hladnikia pastinacifolia*) in nekatere južno- oz. jugovzhodnoalpsko-ilirske vrste (npr. *Phyteuma scheuchzeri* subsp. *columnae*, *Astrantia carniolica* in *Aquilegia bertolonii*) in jih opisujemo kot naslednje nove sintaksone: *Primulo carniolicae-Seslerietum calcariae*, *Primulo carniolicae-Caricetum firmae*, *Caricetum mucronatae* var. geogr. *Primula carniolica* in *Caricetum ferrugineae* var. *Astrantia carniolica*.
Ključne besede: *Caricion firmae*, *Caricion austroalpinae*, *Caricion ferrugineae*, fitogeografija, fitocenologija, sintaksonomija, Trnovski gozd, Slovenija

1. INTRODUCTION

The Trnovski gozd plateau is a vast high karst plateau in the northwesternmost part of the Dinaric mountains. Habič (1968) and Janež & al. (1997) among others, contributed a detailed geomorphological description of the plateau, whose largest part is covered with expansive forests and which has a rich, several centuries long tradition of planned forest management (comp. for example Mikuletič 1953, 1985, Kozorog & al. 1998, Žigon 2003). The forest and scrub vegetation of this region was investigated by M. Wraber (1953, 1952, 1962), Piskernik (1954, 1973, 1991), Martinčič (1977), Marinček & al. (1977), Čampa (1978), Puncer (1979), Urbančič & al. (1979), Zupančič (1980, 1999), Hočevar & al.

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(1995), Marinček (1996, 1998), Dakskobler (1998, 1999, 2003 a), Dakskobler & al. (2000), Urbančič & Dakskobler (2003), Surina (2001, 2002), P. Košir (2004, 2005), Zupančič & al. (2005) and others.

There are fewer publications on non-forest vegetation. Petrophilous vegetation and stony grasslands on the southern edge of the Trnovski gozd plateau were studied by Poldini (1978), Kaligarič (1997) and Kaligarič & Poldini (1997). Some data on the vegetation and typical communities of the northern edge of the Trnovski gozd plateau were contributed already by Martinčič (1958, 1961), and some of the chasmophytic communities and stony grassland communities were described in more detail several years ago (Dakskobler 1998).

General synoptic descriptions of flora and vegetation of the Trnovski gozd plateau were contributed by T. Wraber (1959, 1990 a), T. Wraber & Zupančič (1999), Velikonja (2001) and Dakskobler (2004).

The reasearches conducted on the vegetation of the northern edge of the Trnovski gozd plateau so far (Dakskobler 1998, 1999) were supplemented with relevés of calcareous open sedge swards and stony grasslands found on smaller surfaces on rocky edges and rock walls of Stanov rob, Poldanovec and Zeleni rob, as well as on Sončni rob above Hudo polje, in Gamsarica above the spring of the Belca and under Hudournik on the northern edge of the Vojsko plateau above the valleys of Hotenja and Kanomlja (Figures 1 a and 1 b).

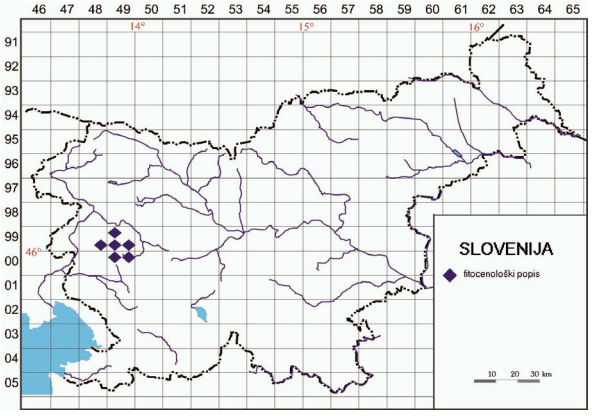


Figure 1 a: Localities of the researched stony grasslands on the map of Slovenia.

Slika 1 a: Nahajališča popisanih kamnitih travišč na karti Slovenije.

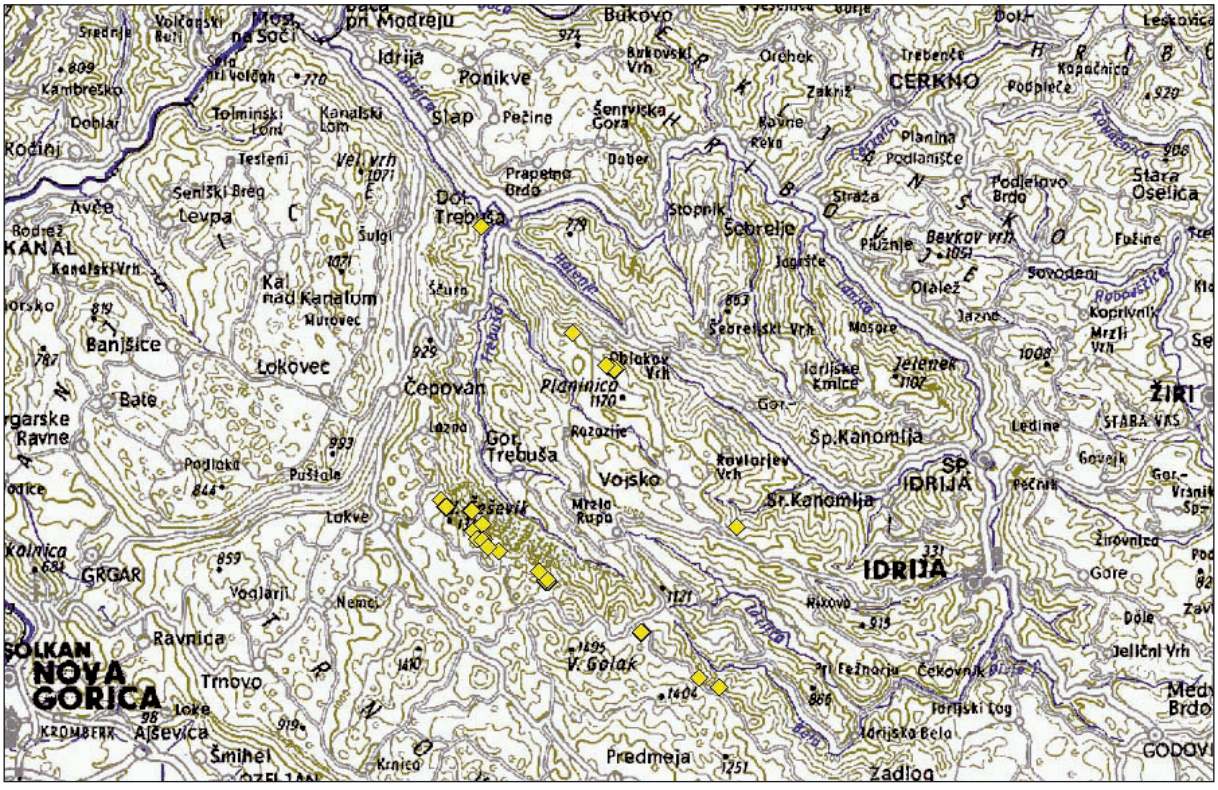


Figure 1 b: Localities of the researched stony grasslands (Source: Map of Slovenia 1: 250 000, GURS).

Slika 1 b: Nahajališča popisanih kamnitih travišč (Vir: Pregledni zemljevid Slovenije 1: 250 000, GURS).

2. METHODS

Between 1996 and 2004 we made 52 relevés of stony grasslands and sedge swards in the rock walls on the northern edge of the Trnovski gozd plateau applying the standard Central-European phytosociological method (Braun-Blanquet 1964). The collected relevés were entered into the FloVegSi database (Fauna, Flora, Vegetation and Paleovegetation of Slovenia) of Jovan Hadži Institute of Biology SRC SASA (T. Seliškar & al. 2003) and analysed with methods of hierarchical classification and the ordination method of principal coordinates analysis (PCoA). We employed the SYN-TAX 2000 (Podani 2001) program package. Combined cover-abundance values were transformed into the ordinal scale following van der Maarel (1979). In our comparisons we tested the following methods of hierarchical clustering: "complete linkage (farthest neighbour) method – FNC", "(Unweighted) average linkage method – UPGMA", "(Weighted) average linkage method – WPGMA", as well as "Incremental sum of squares – MISSQ" method and ordination method of principal coordinates analysis (PCoA). We used the dissimilarity coefficient "1- similarity ratio". Podani (2005) questions the correctness of applying these methods when processing ordinal data (such as the combined cover-abundance values transformed with van der Maarel's scale from 1 to 9) and proposes instead Ordinal Clustering (OrdClAn) and Non-metric Multidimensional Scaling (NMDS) for such data. We therefore tested these two methods as well and the results turned out to be very similar. The results of numerical methods were combined with the classic arrangement based on diagnostic species. Some of the determined communities were compared with similar communities in the Southeastern Alps and in the Dinaric mountains. The results of this extensive comparison (Surina & Dakskobler 2005, Surina & T. Wraber 2005, see also Surina 2005 a) were the starting point for our description of new syntaxa. When calculating the proportions of diagnostic species we used as weight (ponder) not only frequency, but also the cover index (Ic) – Lausi & al. (1982: 124).

The nomenclature follows the Mala flora Slovenije (Martinčič & al. 1999) for vascular plants, Frahm & Frey (1992) and Martinčič (2003) for mosses, and Wirth (1995) for lichens. We determined only the most common taxa of mosses and lichens, some only up to the rank of genus. With the names of syntaxa we follow the following authors: Grabherr & al. (1993), Robič & Accetto (2001), Theurillat in Aeschimann & al. (2004 b), Surina & al. (2004) and Surina & Dakskobler (2005).

3. ECOLOGICAL CHARACTERIZATION OF THE RESEARCH AREA

On its northeastern edge, the Trnovski gozd plateau falls extremely steeply into the Trebuša valley. The collective name for the rocky and precipice slopes of Stanov rob (1191 m), Poldanovec (1299 m) and Zeleni rob, which are all cut with numerous gorges, is Govci (also known as Golci, and the rockiest part under Poldanovec and Zeleni rob as Trebuška stena). The geological bedrock is Triassic dolomite (Buser 1965, 1973 a, b, 1986, 1987). The soil is shallow, extremely skeletal (Lithosols, rendzina, colluvial-delluvial soil in gullies) and subject to erosion. The northeastern part of the Trnovski gozd plateau has a relatively cold and very humid mountain climate. The nearest meteorological observatory on Vojsko (1070 m a.s.l.) reported the mean annual temperature of 6.2 °C in the period between 1961–1990 (the mean temperature of the coldest month, at that time January, was –2.8 °C, and the mean temperature of the warmest month, July, was 15.3 °C – according to Mekinda-Majaron 1995: 129). The mean annual precipitation in the same period (1961–1990) on Vojsko was 2450 mm. Precipitation is relatively evenly distributed throughout the year with autumn months being the wettest, whereas the lowest amount of precipitation is usually recorded in the second half of winter, in early spring and in summer (B. Zupančič 1995: 339). The snow stays in deep gorges under Poldanovec and Zeleni rob long into the spring. In this part of the Trnovski gozd plateau, sleet is a very common weather phenomenon, occasionally also whirlwinds. Northern winds are very powerful on ridges and exposed edges. Also common are forest fires, which usually affect dry and exposed jags and ridges, at least partly overgrown with dwarf pine (*Pinus mugo*) and (or) natural Austrian pine (*Pinus nigra*) stands.

On account of its northern exposure and the vicinity of the Julian Alps, the flora and vegetation of Govci is more or less Alpine (Martinčič 1958, Dakskobler 1998, 2004). While steep slopes, ledges and gullies are overgrown with a beech forest with Hairy Alpenrose (*Rhododendro hirsuti-Fagetum* Accetto ex

Dakskobler 1998), jags and precipice rock walls are covered with south-Alpine Austrian black pine forest (*Fraxino orni-Pinetum nigrae* Martin-Bosse 1967). Higher up in the rock walls under Poldanovec and Zeleni rob black pine is gradually being substituted with Alpine dwarf pine stands – *Rhododendro hirsuti-Pinetum prostratae* Zöttl 1951 nom. inv. var. geogr. *Anemone trifolia* Poldini, Oriolo & Francescato 2004 [*Rhodothamno-Rhododendretum hirsuti* (Aichinger 1933) Br.-Bl. & Sissingh in Br.-Bl. & al. 1939 var. geogr. *Paederota lutea* Zupančič & Žagar in Zupančič, Wraber & Žagar 2004, *Rhodothamno-Pinetum mugo* Zupančič & Žagar 1980 mscr.]. The more or less extensive rock walls are overgrown with chasmophytic communities. So far, they have been classified into the following associations: *Phyteumato-Potentilletum caulescentis* Poldini 1978, *Primulo carniolicae-Potentilletum caulescentis* Dakskobler (1998) 2000 and *Potentillo clusianae-Campanuletum zoysii* Aichinger 1933 var. geogr. *Primula carniolica* Dakskobler 1998. In recent years we found and recorded also a community of wet rock crevices in these rock walls, for the time being only provisonaly classified as *Primulo carniolicae-Paederotetum luteae* nom. prov.

Sedge swards, which are rather similar to chasmophytic communities regarding their entire species composition and are in places also syndynamically directly connected to them, grow on smaller surfaces (exposed and windy ridges, edges of rock walls, ledges). The dominant species of these small surface communities are sedges (*Carex firma, C. mucronata*, on stony grasslands in wet gullies *C. ferruginea*) and the taxon *Sesleria caerulea* subsp. *calcaria*. The sedge sward in Govci (on Poldanovec and on Zeleni rob) was first mentioned by Martinčič (1958: 15–20), who described it as the association *Caricetum firmae* and was also the first to give its species composition (but without a phytosociological table). Apart from that, Martinčič (1958: 19) mentions also a community with the dominant species *Carex ferruginea* for this region, above all in the gullies under Poldanovec.

Similar sedge swards to those in Govci (with dominant *Carex firma* or *C. mucronata*) were catalogued also on the dolomite peak of Sončni rob (1255 m) above Hudo polje and on precipice shady slopes and rock walls under Putrih (1124 m) and Ciganski vrh (1336 m) above the spring of the Belca (Gamsarica). The rock walls here are not overgrown with black and (or) dwarf pine stands, but mainly by beech and hop hornbeam stands [*Rhododendro hirsuti-Fagetum*, *Rhododendro hirsuti-Ostryetum* Franz (1991) 2002 nom. prov.].

In comparison with Govci, the rock walls of Hudournik (1148 m) on the northern edge of the Vojsko plateau are even closer to the southern Julian Alps, but rather similar to Govci regarding their flora and vegetation. The steep shady slopes are overgrown with beech and (or) hop hornbeam stands with Hairy Alpenrose (*Rhododendro hirsuti-Fagetum, Rhododendro hirsuti-Ostryetum*). Smaller surfaces on the summit ridge are covered also with Alpine dwarf pine stands (*Pinetum mugo* s. lat.) and individual larch trees (*Larix decidua*). Chasmophytic communities (*Primulo carniolicae-Potentilletum caulescentis* and others) grow in rock walls, whereas the ledges and edges are covered with small surface sedge swards with *Carex firma* and (or) *C. mucronata*, and on very small surfaces even with *Dryas octopetala* – Terpin (1994: 59).

4. RESULTS AND DISCUSSION

The hierarchical classification of 52 relevés of sedge swards and stony grasslands obtained with the (Unweighted) average linkage method – UPGMA is shown in Figure 2. Comparisons with other methods gave very similar results. At least five distinctive clusters can be seen in the dendrogram, while the other relevés are very different and cannot be treated as independent groups. The relevés were arranged according to these results and the clusters obtained can be assigned to the following communities: The first and the largest cluster (22 relevés) comprises the stands dominated by *Carex firma* and can be characterized as a *Carex firma* community in the wider sense (*Caricetum firmae* s. lat.). Based on the comparisons conducted in another article (Surina & Dakskobler 2005: 400) we determined that regarding their floristic composition these stands are more similar to the *Carex firma* community in the Southeastern Alps (*Gentiano terglouensis-Caricetum firmae* T. Wraber 1970) than to the similar community in the northern part of the Dinaric mountains – *Edraiantho graminifolii-Caricetum firmae* Horvat (1930) 1934. Because of their floristic characteristics (*Primula carniolica, Hladnikia pastinacifolia, Aquilegia bertolonii, Astrantia carniolica, Phyteuma scheuchzeri* subsp. c*olumnae*, in one relevé also *Edraianthus graminifolius*) and their thriving in the transitional phytogeographical region between the Dinaric mountains and the Julian Alps, these stands can be treated as a new geographical variant (= vicariant, geographical race – see Moravec 1994) of the association *Gen-*

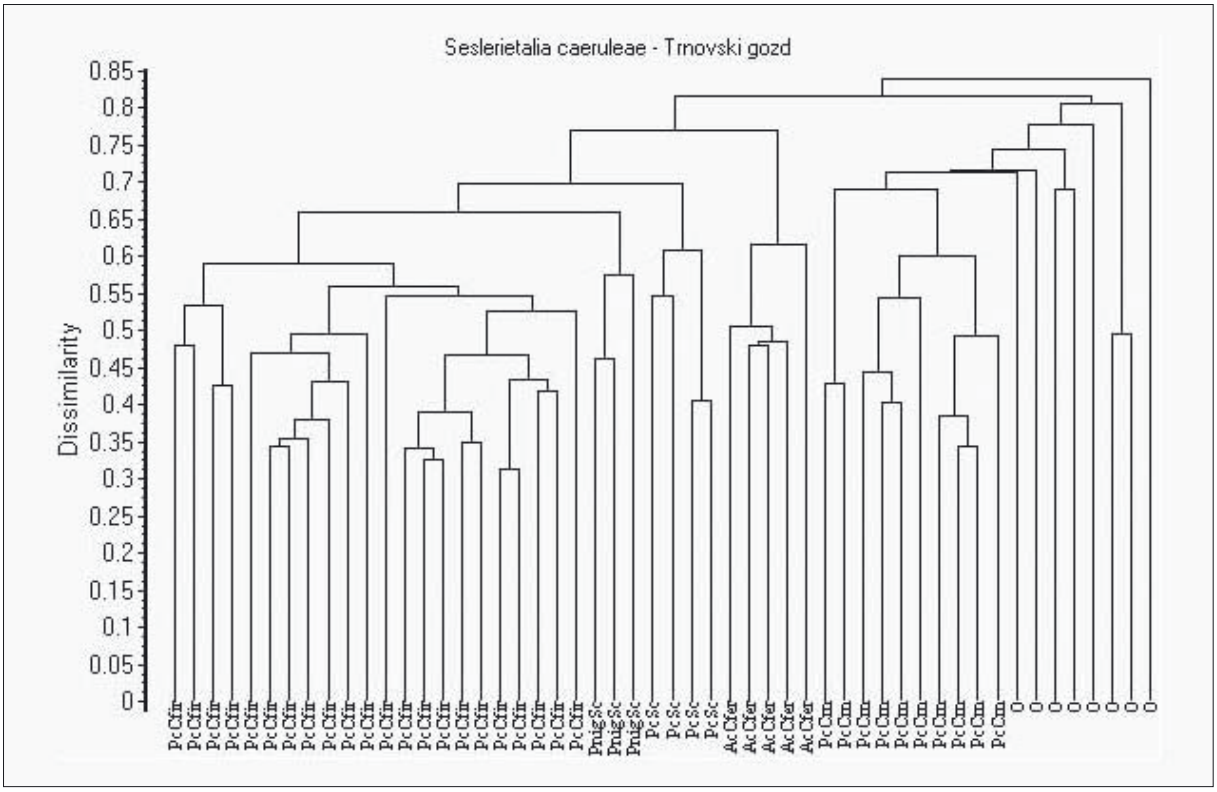


Figure 2: Dendrogram of the researched sedge swards and stony grasslands on the northern edge of the Trnovski gozd plateau (UPGMA, similarity ratio): PcCfir – *Primulo carniolicae-Caricetum firmae*, PingSc – *Pino nigrae-Seslerietum calcariae*, PcSc – *Primulo carniolicae-Seslerietum calcariae*, AcCfer – *Caricetum ferrugineae* var. *Astrantia carniolica*, PcCm – *Caricetum mucronatae* var. geogr. *Primula carniolica*, O – Other communities.

Slika 2: Dendrogram preučenih kamnitih travišč na severnem robu Trnovskega gozda (UPGMA, similarity ratio): PcCfir – *Primulo carniolicae-Caricetum firmae*, PingSc – *Pino nigrae-Seslerietum calcariae*, PcSc – *Primulo carniolicae-Seslerietum calcariae*, AcCfer –*Caricetum ferrugineae* var. *Astrantia carniolica*, PcCm – *Caricetum mucronatae* var. geogr. *Primula carniolica*, O – druge združbe.

tiano terglouensis-Caricetum firmae T. Wraber 1970, or even as a new association, *Primulo carniolicae-Caricetum firmae* ass. nova.

The determination is particularly difficult because none of the character species of the association *Gentiano-Caricetum firmae* – *Gentiana froelichii*, *G. terglouensis*, *Phyteuma sieberi*, *Primula wulfeniana* and *Sesleria sphaerocephala* (Grabherr & al. 1993: 409) – were found in the studied stands. The species *Primula carniolica*, *Aquilegia bertolonii*, *Astrantia carniolica* and *Hladnikia pastinacifolia* on the other hand, cannot be the character species of the new association, but only its differential species. Considering their ecological characteristics (their growth in the montane belt at the altitude of 550 to 1300 m), we decided for the second possibility and selected relevé No. 11 in Table 1 as the nomenclature type (*holotypus*) of the new association. The stands of the new association are syndynamically closely connected with chasmophytic communities, especially with the stands of the syntaxon *Potentillo clusianae-Campanuletum zoysii* var. geogr. *Primula carniolica*.

In the second cluster, which comprises only three relevés, are the stands previously treated as a successional stage of the *Sesleria albicans-Pinus nigra* community (see Dakskobler 1998). This is a progressive stage with not only chasmophytic and subalpine grassland species, but also with an abundant growth of certain basophilous pine forest species (*Rhododendron hirsutum, Rhodothamnus chamaecistus, Pinus nigra*), as well as with *Salix glabra* and *S. appendiculata* and individual saplings of beech, hop hornbeam and flowering ash. In good conditions, such stony grasslands are overgrown with either Austrian black pine (*Pinus nigra*) or with dwarf pine (*Pinus mugo*). In this article, this transitional

community is characterized as an association with the provisional name *Pino nigrae-Seslerietum calcariae* nom. prov.

The relevés of the third cluster were classified into the association *Primulo carniolicae-Seslerietum calcariae* ass. nova. Those are stony grasslands dominated by *Sesleria caerulea* subsp. *calcaria* = *S. albicans* and some of the chasmophytic species (*Primula carniolica, Valeriana saxatilis*, *Paederota lutea*). Dakskobler (2003 b) published a phytosociological table with five relevés which were at that time classified into the syntaxon with the provisional name *Primulo carniolicae-Seslerietum albicantis* Dakskobler 2003 nom. prov. When comparing these five relevés with relevés 26–29 in Table 1 we realized we were dealing with a similar community. We therefore made a new phytosociological table and excluded one of the relevés published a few years ago (as it differed from the rest), so we can now typify the new association. The nomenclature type (*holotypus*) is relevé No. 3 in Table 2. The differential species of the association are the taxa *Primula carniolica, Primula* x *venusta, Valeriana saxatilis* and *Paederota lutea*. The stands of the association *Primulo carniolicae-Seslerietum calcariae* are syndynamically connected with the stands of the association *Primulo carniolicae-Potentilletum caulescentis*, and further succession goes in the direction of the communities of the class *Erico-Pinetea*. In the submontane and the lower montane belt, those are most often the scrub communities from the association *Rhododendro hirsuti-Ostryetum*, and the stands of the associations *Fraxino orni-Pinetum nigrae* and *Pinetum mugo* s. lat. in the montane and the altimontane belt.

The stands of the fourth cluster (five relevés) are assigned to a new variant *Caricetum ferrugineae* Lüdi 1921 var. *Astrantia carniolica* var. nova. These are stony wet grasslands recorded in gullies under Zeleni rob and in Gamsarica, but Martinčič (1958: 19) mentions them also in the gorges under Poldanovec. These stands were compared to our relevés of the association *Caricetum ferrugineae* s. lat. from the Julian Alps (mostly from the Tolmin-Bohinj ridge, although some of the relevés were made also in the Bovec region; we have not included the quite specific relevés of the successional stage *Saxifrago aizoidis-Caricetum ferrugineae* Dakskobler 1996 on the erosion area under the peak of Črni vrh, on the northern slopes of Porezen). With all of the methods of hierarchical classification, as well as with the ordination method of principal coordinates analysis, these relevés, together with another two relevés from the southern Julian Alps (made on wet rubbly ledges under Okroglica near the Suha pasture in Bohinj) grouped separately from the other relevés (Figure 3). We believe this is a special form of the association *Caricetum ferrugineae* s. lat., syndynamically connected to scree communities. Apart from the species of subalpine grasslands (*Carex ferruginea, Sesleria caerulea* subsp. *calcaria, Aster bellidiastrum, Laserpitium peucedanoides* and *Betonica alopecurus*), the species such as *Astrantia carniolica*, *Adenostyles glabra* and *Calamagrostis varia*, together with some of the species of wet springs, also occur frequently and (or) abundantly. The problems regarding the syntaxonomy and phytogeography of the *Carex ferruginea* communities in the Slovenian Alps still remain vague. Surina (2005 a: 118) cannot agree with the statement of Buffa and Sburlino (2001: 196) who claim that these stands belong to the association *Hyperico grisebachii-Caricetum ferrugineae* Horvat ex Wraber 1971. He classified such stands in the Krn mountains into the association *Caricetum ferrugineae* Lüdi 1921 and described two new variants. Our classification follows his criteria, but thorough comparison of *Carex ferruginea* communities in the Julian Alps and in the Dinaric mountains is required. Differential species of the new variant are *Calamagrostis varia* and *Astrantia carniolica*. The latter is a southeast-Alpine-Illyrian species of stony and wet sites in the montane and subalpine belt. It grows in stony forests (e.g. in the stands of the associations *Anemono trifoliae-Fagetum* Tregubov 1962, *Homogyno sylvestris-Fagetum* Marinček & al. 1993 and *Rhododendro hirsuti-Fagetum*), in subalpine scree communities, in dolomite springs (e.g. together with *Pinguicula alpina*, *Schoenus nigricans* and *Primula carniolica*) and in wet rock crevices (see also T. Wraber 1990 b: 62). In Slovenia, the communities where this species grows outside the forest remain only poorly researched. Local differential species of the new variant are also *Primula carniolica, Hladnikia pastinacifolia* and *Aquilegia bertolonii*. The first two are Slovenian endemics and the third a south-European montane species distributed in the Southwestern Alps, the northern Apennines, in a part of the Slovenian Alps and on the northern edge of the Dinaric mountains (Aeschimann & al. 2004 a: 188). All three species chorologically define the newly described syntaxon as a community of the Southeastern Alps and the northern part of the Dinaric mountains. The nomenclature type (*holotypus*) of the variant *Caricetum ferrugineae* var. *Astrantia carniolica* var. nova is relevé No. 4 in Table 3.

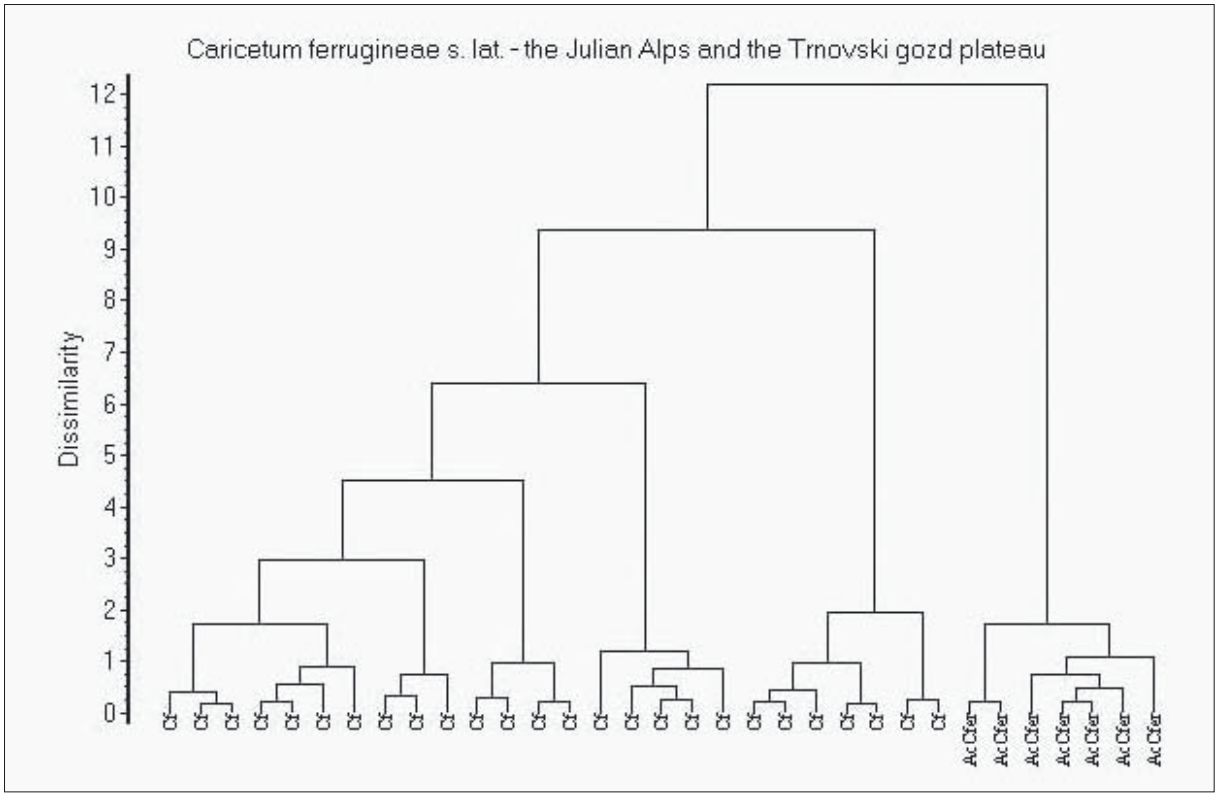


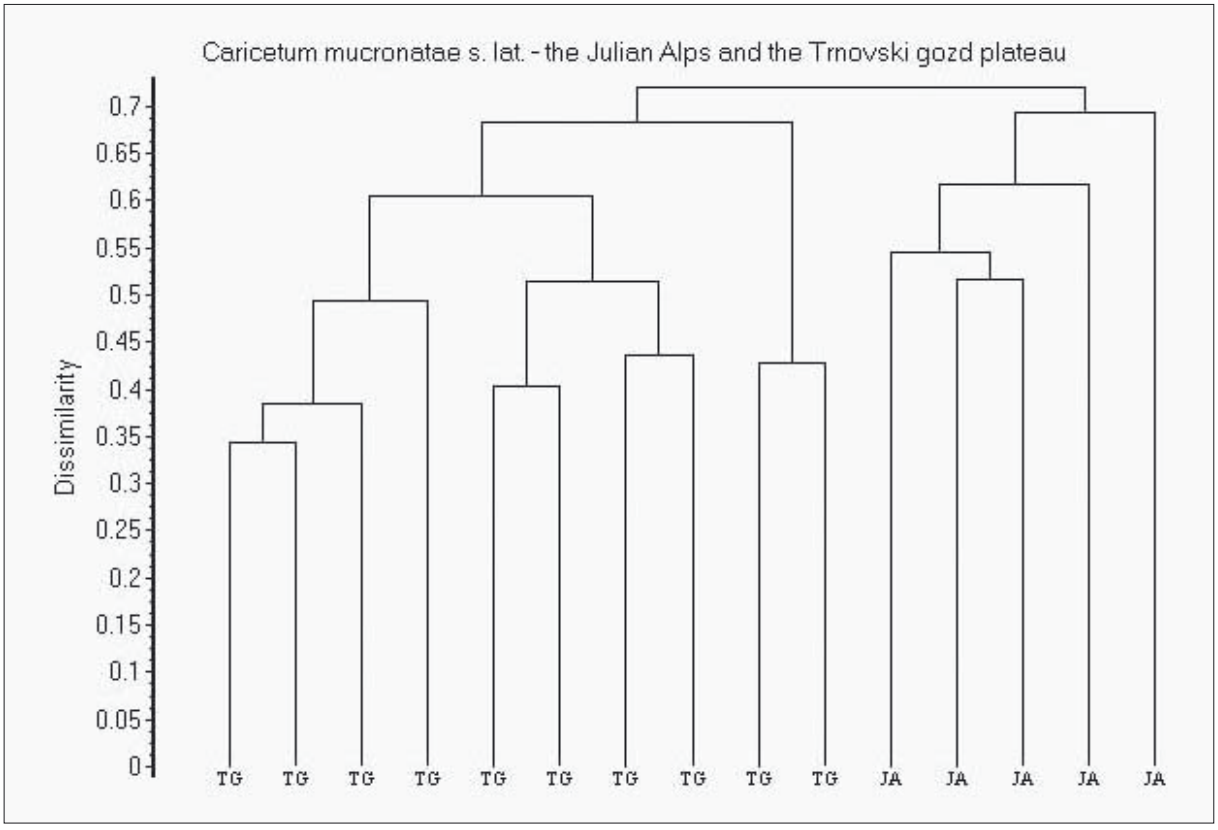
Figure 3: Dendrogram of the relevés of the macroassociation *Caricetum ferrugineae* s. lat from the Julian Alps and the Trnovski gozd plateau (MISSQ, similarity ratio): Cf – *Caricetum ferruginea* s. lat., AcCfer – *Caricetum ferrugineae* var. *Astrantia carniolica*.

Slika 3: Dendrogram sestojev makroasociacije *Caricetum ferrugineae* s. lat. – Julijske Alpe in Trnovski gozd (MISSQ, similarity ratio): Cf – *Caricetum ferruginea* s. lat., AcCfer – *Caricetum ferrugineae* var. *Astrantia carniolica*.

In the ten relevés of the fifth cluster, *Carex mucronata* is a more or less dominant species. Regarding their floristic composition and the site conditions in which they grow (dry, rocky, windy ridges), these stands can be classified into the association *Caricetum mucronatae* s. lat. The subalpine-alpine stands with dominant *Carex mucronata* in the Southeastern Limestone Alps are phytosociologically still only poorly documented (Surina 2004: 87, Surina 2005 a). Similarly, there are no unified views on their synsystematic classification (Grabherr & al. 1993: 410–411, Surina & T. Wraber 2005: 105–106). According to the comparisons made so far (Surina & Dakskobler 2005, Surina & Wraber 2005) we found that the studied *Carex mucronata* stands from the Trnovski gozd plateau are floristically more similar to the stands of this species from the Julian Alps, which are currently classified into the association *Caricetum mucronatae* (Br.-Bl. in Br.-Bl. & Jenny 1926) Tomaser 1977 (Surina 2004, 2005 a), than to the *Carex mucronata* stands on Mt. Snežnik; Surina & T. Wraber (2005) classified the latter stands into the association *Scabioso silenifoliae-Caricetum mucronatae* Surina & T. Wraber 2005. Our community is differentiated from both the compared communities by a group of geographically restricted species (*Primula carniolica, Hladnikia pastinacifolia, Phyteuma scheuchzerii* subsp. *columnae* and *Aquilegia bertolonii*).

By comparing ten of the relevés from the Trnovski gozd plateau with five relevés from the Julian Alps, two of which were already published by Surina (2004, 2005 a) in his doctoral thesis (Table 4 and Figures 4 and 5), we determined that the stands from the Trnovski gozd plateau are relatively well differentiated from the stands from the Julian Alps. Synsystematically, these differences can be treated as two geographical variants of the same association (*Caricetum mucronatae* s. lat.), so we classify the *Carex mucronata* stands on the Trnovski gozd plateau into the new geographical variant (vicariant, race) *Caricetum mucronatae* (Br.-Bl. in Br.-Bl. & Jenny 1926) Tomaser 1977 var.

geogr. *Primula carniolica* var. geogr. nova. Although the Code of phytosociological nomenclature (Weber & al. 2000) does not consider geographical variants (and therefore does not allow the correct typification of the syntaxa of this rank), we selected its nomenclature type (*holotypus*) – relevé No. 2 in Table 4. The differential species of the new geographical variant are *Primula carniolica, Hladnikia pastinacifolia, Phyteuma scheuchzerii* subsp. *columnae* and *Edraianthus graminifolius*. These stands are syndynamically connected mainly with chasmophytic communities (*Primulo carniolicae-Potentilletum caulescentis*), partly also with the stands of the association *Primulo carniolicae-Caricetum firmae*.



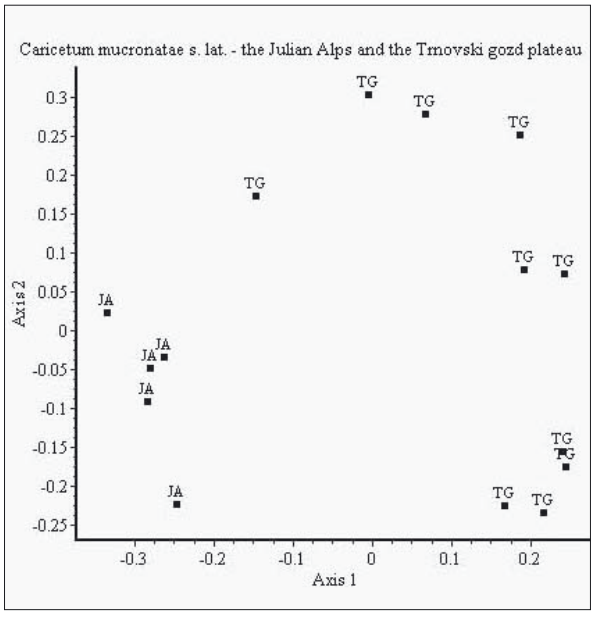


Figure 4: Dendrogram of the *Carex mucronata* swards from the Julian Alps (JA) and the northern edge of the Trnovski gozd plateau (TG) – UPGMA, similarity ratio.

Slika 4: Dendrogram sestojev z dominantno vrsto *Carex mucronata* iz Julijskih Alp (JA) in severnega roba Trnovskega gozda (TG) – UPGMA, similarity ratio.

Figure 5: Two-dimensional scatter-diagram of the *Carex mucronata* swards from the Julian Alps (JA) and the northern edge of the Trnovski gozd plateau (TG) – PCoA, similarity ratio.

Slika 5: Dvorazsežni ordinacijski diagram sestojev z dominantno vrsto *Carex mucronata* iz Julijskih Alp (JA) in severnega roba Trnovskega gozda (TG) – PCoA, similarity ratio.

The *Genisto holopetalae-Caricetum mucronatae* Horvat 1956 (Poldini 1978: 311–313, T. Wraber 1990 a: 200–202, Kaligarič 1997: 63) is a thermophilous community dominating stony grasslands on the southern edge of the Trnovski gozd plateau. Regarding the number of species, this community is considerably richer and is classified into the alliance *Satureion subspicatae* Horvat 1962 and into class *Festuco-Brometea* Br.-Bl. & Tüxen 1943.

Relevés No. 45 to 52 have not been classified into any of these syntaxa. These relevés stood out considerably in all our comparisons conducted so far and do not even resemble each other much. Relevés No. 45–49 are nevertheless most similar to the stands of the syntaxa *Caricetum mucronatae* var. geogr. *Primula carniolica* and *Phyteumato-Potentilletum caulescentis*. While relevé No. 52 could be classified into a special form of the association *Primulo carniolicae-Seslerietum calcariae*, relevés 50 and 51 are floristically already very similar to the stony mountain grasslands from the alliance *Satureion subspicatae*, which is the community classified by Kaligarič (1997) and Kaligarič & Poldini (1997) as a phytocoenon with *Primula auricula*. The relevés made near Stanov rob could be treated as an independent association (*Saturejo liburnicae-Seslerietum calcariae* nom. prov.) that would still be classified into the class *Elyno-Seslerietea*. On the southern hillsides of the Trnovski gozd plateau already grows the taxon *Sesleria juncifolia* subsp. *kalnikensis* (Strgar 1990) and the phytocoenon with *Primula auricula* could in this case be typified as the association *Primulo auriculae-Seslerietum kalnikensis*.

In the synthetic table (Table 5) we gave a unified presentation of all the five determined syntaxa and mutually compared them with the principal coordinates analysis ordination method (Figures 6 and 7). The first axis (x) in the ordination diagram (Figure 6) shows the dry soil or thermophility gradient. The stands of the association *Primulo*

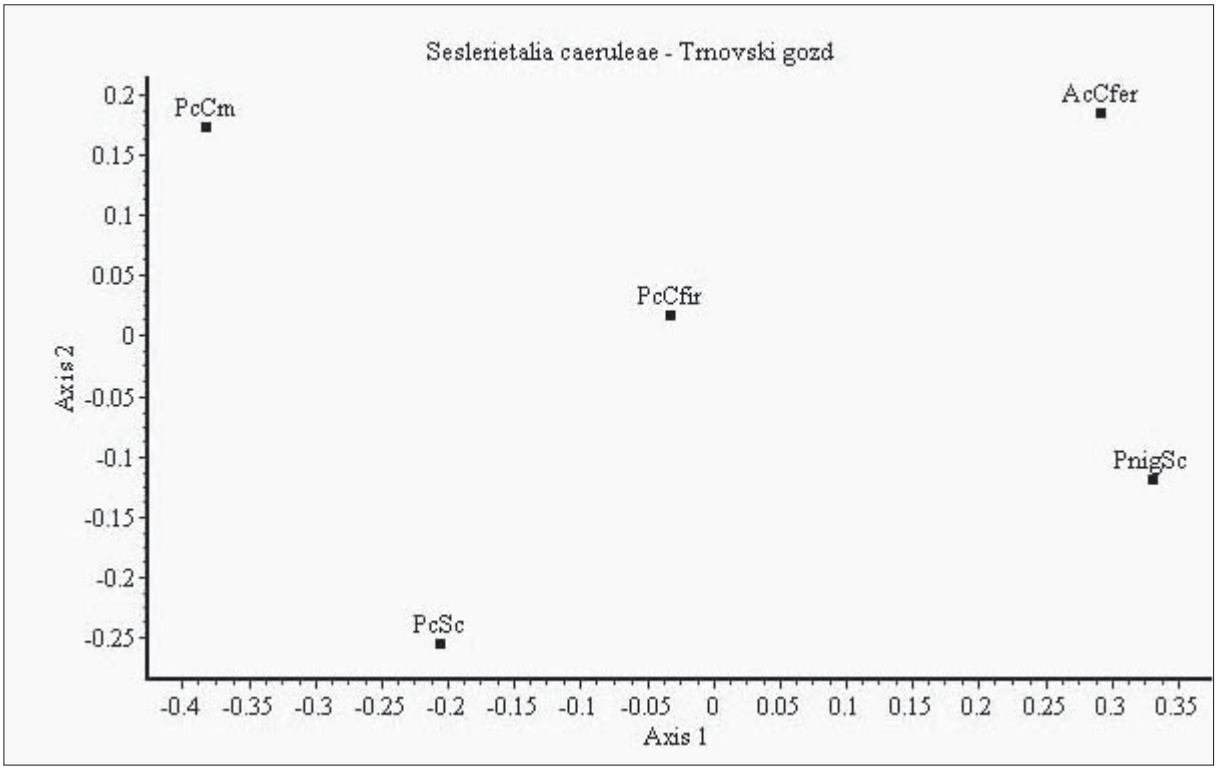


Figure 6: Two-dimensional scatter-diagram of the sedge swards and stony grassland communities on the northern edge of the Trnovski gozd plateau – PCoA, similarity ratio (PcCfir – *Primulo carniolicae-Caricetum firmae*, PingSc – *Pino nigrae-Seslerietum calcariae*, PcSc – *Primulo carniolicae-Seslerietum calcariae*, AcCfer – *Caricetum ferrugineae* var. *Astrantia carniolica*, PcCm – *Caricetum mucronatae* var. geogr. *Primula carniolica*).

Slika 6: Dvorazsežni ordinacijski diagram združb blazinastega rastja in kamnitih travišč na severnem roba Trnovskega gozda – PCoA, similarity ratio (PcCfir – *Primulo carniolicae-Caricetum firmae*, PingSc – *Pino nigrae-Seslerietum calcariae*, PcSc – *Primulo carniolicae-Seslerietum calcariae*, AcCfer – *Caricetum ferrugineae* var. *Astrantia carniolica*, PcCm –*Caricetum mucronatae* var. geogr. *Primula carniolica*).

carniolicae-Caricetum mucronatae grow on the driest sites, and the stands of the variant *Caricetum ferrugineae* var. *Astrantia carniolica,* as well as those of the stage *Pino nigrae-Seslerietum calcariae* nom. prov., on the relatively wettest (and coldest) sites. The stands of the association *Primulo carniolicae-Caricetum firmae* are central (between both extremes) within this gradient. When comparing single relevés (Figure 7), the first axis still shows the dry soil gradient, while the second axis (y) might indicate the soil developement gradient (initial, raw soil of *Primulo carniolicae-Caricetum firmae* and *Caricetum mucronatae,* and colluvial-delluvial soil of *Caricetum ferrugineae*).

We also analysed composition according to the groups of diagnostic species and took frequency (Fr.) and cover index (Ic) as weight (ponder) – Table 6. Three of the communities described are proportionally (regardless of weight) dominated by

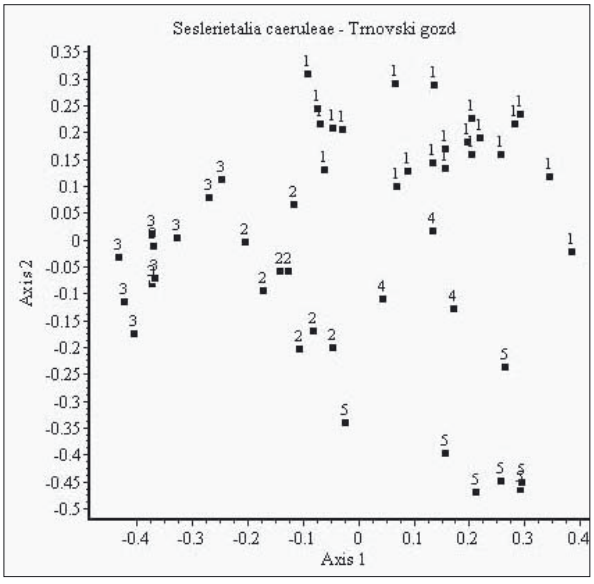


Figure 7: Two-dimensional scatter-diagram of the sedge swards and stony grassland communities on the northern edge of the Trnovski gozd plateau – PCoA, similarity ratio (1 – *Primulo carniolicae-Caricetum firmae*, 2 – *Primulo carniolicae-Seslerietum calcariae*, 3 – *Caricetum mucronatae* var. geogr. *Primula carniolica*, 4 – *Pino nigrae-Seslerietum calcariae*, 5 – *Caricetum ferrugineae* var. *Astrantia carniolica*).

Slika 7: Dvorazsežni ordinacijski diagram združb blazinastega rastja in kamnitih travišč na severnem roba Trnovskega gozda – PCoA, similarity ratio (1 – *Primulo carniolicae-Caricetum firmae*, 2 – *Primulo carniolicae-Seslerietum calcariae*, 3 – *Caricetum mucronatae* var. geogr. *Primula carniolica*, 4 – *Pino nigrae-Seslerietum calcariae*, 5 – *Caricetum ferrugineae* var. *Astrantia carniolica*).

Table 6: Phytosociological groups in the communities of the order *Seslerietalia caeruleae* on the northern edge of the Trnovski gozd plateau (relative frequencies, pondered with frequency – Fr. and cover index – Ic).

Tabela 6: Fitocenološke skupine v združbah iz reda *Seslerietalia caeruleae* na severnem robu Trnovskega gozda (relativne frekvence, ponderirano s frekvencami – Fr. in koeficentom pokrovnosti – Ic).

Successive number (Zaporedna številka)	1		2		3		4		5	
Number of relevés (Število popisov)	22		4		10		3		5	
Sign of syntaxa (Oznaka sintaksonov)	PcCfir		PcSc		PcCm		PnigSc		AcCfer	
	Fr.	Ic	Fr.	Ic	Fr.	Ic	Fr.	Ic	Fr.	Ic
Elyno-Seslerietea	24	33	21	22	30	39	19	23	20	28
Asplenietea trichomanis	20	19	22	22	19	15	8	8	9	7
Thlaspietea rotundifolii	13	11	4	3	7	7	10	9	16	15
Festuco-Brometea	2	2	3	2	12	11	1	1	5	5
Scheuchzerio-Caricetea fuscae	7	6	3	2	1	1	7	7	8	8
Mulgedio-Aconitetea	4	3	7	7	4	3	5	6	7	6
Erico-Pinetea	15	14	19	23	19	17	21	21	15	16
Vaccinio-Piceetea	1	1	5	3	0	0	7	6	3	3
Fagetalia sylvaticae	2	1	1	1	1	1	10	9	12	8
Quercetalia pubescentis	0	0	1	1	0	0	3	2	1	1
Querco-Fagetea	0	0	0	0	0	0	1	1	1	1
Other species (Druge vrste)	0	1	0	0	1	1	2	2	0	0
Mosses and lichens (Mahovi in lišaji)	11	9	14	15	6	6	6	5	4	4
Total (Skupaj)	100	100	100	100	100	100	100	100	100	100

the species of the class *Elyno-Seslerietea*, the stage *Pino nigrae-Seslerietum calcariae* is dominated by the species of the class *Erico-Pinetea*, whereas in the association *Primulo carniolicae-Seslerietum calcariae* the species of the classes *Asplenietea trichomanis*, *Erico-Pinetea* and *Elyno-Seslerietea* are represented with relatively equal proportions. It is an explicitly transitional community or a succession stage in the series from chasmophytic communities towards basophilous scrub communities.

A significant proportion of the species of basophilous pine forests in all the syntaxa described is due to the fact that sedge swards and stony grasslands occur on small areas and extrazonally even in the forest belt, especially in the communities of the class *Erico-Pinetea* (*Fraxino orni-Pinetum nigrae*, *Pinetum mugo* s. lat.). A diagnostically rather high proportion of the species of the class *Festuco-Brometea* and comparatively the lowest (negligible) proportion of the species of the class *Scheuchzerio-Caricetea fuscae* point to very dry sites with the stands of the syntaxon *Caricetum mucronatae* var. geogr. *Primula carniolica*. The stands of the syntaxon *Caricetum ferrugineae* var. *Astrantia carniolica* grow mostly in rubbly gullies, often in the vicinity of beech stands (*Rhododendro hirsuti-Fagetum*), which is why they have a relatively high proportion of the species of the class *Thlaspietea rotundifolii* and order *Fagetalia sylvaticae*.

5. CONCLUSIONS

The Trnovski gozd plateau is an explicitly transitional area between the Julian Alps and the Dinaric mountains. This is reflected also in its dominating vegetation – forest communities (Surina 2002, 2003). Regarding their floristic composition, the sedge swards and stony grasslands in the montane-altimontane belt on its northern edge (Govci, Gamsarica, Hudournik) are most similar to the sedge swards and subalpine-alpine grasslands in the Southeastern Alps, classified into the order *Seslerietalia caeruleae* (Surina & Dakskobler 2005, Surina & Wraber 2005). Only a few species characteristic for similar communities in the other parts of the Dinaric mountains, classified into the order *Seslerietalia juncifoliae* (e.g. *Edraianthus graminifolius* on Poldanovec), grow there. On the other hand, the studied communities are characterized by some of the northern-Illyrian endemics (above all by *Primula carniolica* and *Hladnikia pastinacifolia*) and some southern- or southeastern-Alpine-Illyrian species (e.g. *Phyteuma scheuchzeri* subsp. *columnae*, *Astrantia carniolica* and *Aquilegia bertolonii*), which (apart from a partial exception of *Aquilegia bertolonii*) for the most part cannot be found in either southern-Alpine or in other northern-Dinaric communities. On account of the abundant growth of these endemics (e.g. *Primula carniolica*), the studied sedge swards and stony grasslands are treated as special communities. Their classification into higher syntaxonomical units is as follows:

Elyno-Seslerietea Br.-Bl. 1948
- *Seslerietalia caeruleae* Br.-Bl. in Br.-Bl. & Jenny 1926
  - *Caricion firmae* Gams 1936
    - *Primulo carniolicae-Caricetum firmae* ass. nova
    - *Caricetum mucronatae* (Br.-Bl. in Br.-Bl. & Jenny 1926) Tomaser 1977 var. geogr. *Primula carniolica* var. geogr. nova
  - *Caricion austroalpinae* Sutter 1962
    - *Primulo carniolicae-Seslerietum calcariae* ass. nova
  - *Caricion ferrugineae* G. & J. Br.-Bl. 1931
    - *Caricetum ferrugineae* Lüdi 1921 var. *Astrantia carniolica* var. nova

We find that the stands of the newly described syntaxa usually thrive on very small surfaces and are syndynamically connected to chasmophytic communities (*Potentillo clusianae-Campanuletum zoysii* var. geogr. *Primula carniolica*, *Primulo carniolicae-Potentilletum caulescentis*) with which they also have a quite similar floristic composition. In favourable conditions these stony grasslands become overgrown above all with scrub and forest communities of the class *Erico-Pinetea* (*Rhododendro hirsuti-Pinetum prostratae*, *Rhododendro hirsuti-Ostryetum*, *Fraxino orni-Pinetum nigrae*). Human interventions on the sites of these communities are negligible. Their role as a biotope, however, is considerable, as they are the sites hosting the species which are important on the European scale as well (*Primula carniolica, Hladnikia pastinacifolia, Aquilegia bertolonii* – Čušin & al. 2004).

6. POVZETEK

Kamnita subalpinska travišča (*Seslerietalia caeruleae*) na severnem robu Trnovskega gozda (Dinarsko gorstvo, zahodna Slovenija)

V letih 1996–2004 smo na severnem robu Trnovskega gozda: Govci nad dolino Trebuše (pod Stanovim robom, Poldanovcem in Zelenim robom), Sončni rob nad Hudim poljem, Gamsarica nad povirjem Belce, Hudournik na robu Vojskarske planote (sliki 1 a in 1 b) po standardni srednjeevropski metodi (Brun-Blanquet 1964) naredili 52 fitocenoloških popisov kamnitih travišč in blazinastega rastja v ostenjih. Zbrane popise smo vnesli v bazo podatkov FloVegSi (Favna, flora, vegetacija in paleovegetacija Slovenije) Biološkega inštituta Jovana Hadžija ZRC SAZU (T. Seliškar & al. 2003) in jih med seboj primerjali z metodami hierarhične klasifikacije in z ordinacijsko metodo glavnih koordinat (PCoA). Uporabljali smo programski paket SYN-TAX 2000 (Podani 2001). Kombinirane ocene zastiranja in pogostnosti smo pretvorili z vrstilno pretvorbo, ki jo je predlagal van der Maarel (1979). Rezultate numeričnih metod smo kombinirali s klasično ureditvijo na podlagi diagnostičnih vrst. Nekatere ugotovljene združbe smo primerjali s podobnimi v Jugovzhodnih Alpah in v Dinarskem gorstvu. Rezultati te obsežne primerjave (Surina & Dakskobler 2005, Surina & T. Wraber 2005, glej tudi Surina 2005 b) so bili izhodišče za naš opis novih sintaksonov. Pri izračunih deležev diagnostičnih vrst smo kot utež (ponder) poleg frekvence uporabili tudi indeks pokrovnosti – a cover index (Ic) – Lausi & al. (1982: 124). Nomenklaturni vir za imena praprotnic in semenk je Mala flora Slovenije (Martinčič & al. 1999). Nomenklaturni vir za imena mahov so Frahm & Frey (1992) ter Martinčič (2003), za imena lišajev pa Wirth (1995). Pri mahovih in lišajih smo določili le najpogostejše taksone, nekatere le do ranga rodu. Pri imenih sintaksonov se ravnamo po avtorjih Grabherr & al. (1993), Robič & Accetto (2001), Theurillat v Aeschimann & al. (2004 b), Surina & al. (2004) in Surina & Dakskobler (2005).

V urejeni fitocenološki tabeli (tabela 1, slika 2) smo določili pet sintaksonov. V prvem in največjem šopu (22 popisov) so sestoji z dominantnim čvrstim šašem (*Carex firma*). Na podlagi primerjav, ki smo jih opravili na drugem mestu (Surina & Dakskobler 2005: 400), smo ugotovili, da so ti sestoji po svoji floristični sestavi bolj podobni združbi čvrstega šaša v Jugovzhodnih Alpah (*Gentiano terglouensis-Caricetum firmae* T. Wraber 1970) kot združbi v severnem delu Dinarskega gorstva – *Edraiantho graminifolii-Caricetum firmae* Horvat (1930) 1934. Zaradi florističnih posebnosti (*Primula carniolica, Hladnikia pastinacifolia, Aquilegia bertolonii, Astrantia carniolica, Phyteuma scheuchzeri* subsp. *columnae*, v enem popisu tudi *Edraianthus graminifolius*) in uspevanja v prehodnem fitogeografskem območju med Dinarskim gorstvom in Julijskimi Alpami bi jih torej lahko vrednotili kot novo geografsko varianto asociacije *Gentiano terglouensis-Caricetum firmae* ali celo kot novo asociacijo *Primulo carniolicae-Caricetum firmae* ass. nova. Odločitev je težavna, ker v preučenih sestojih nismo našli nobene od značilnic asociacije *Gentiano-Caricetum firmae*: *Gentiana froelichii*, *G. terglouensis*, *Phyteuma sieberi*, *Primula wulfeniana* in *Sesleria sphaerocephala* (Grabherr & al. 1993: 409), vrste *Primula carniolica*, *Aquilegia bertolonii*, *Astrantia carniolica* in *Hladnikia pastinacifolia* pa tudi ne morejo biti značilnice nove asociacije, temveč so le njene razlikovalnice. Ob upoštevanju ekoloških posebnosti (uspevanje še v montanskem pasu, na nadmorski višini od 550 do 1300 m) smo se odločili za drugo možnost in kot nomenklaturni tip (*holotypus*) nove asociacije izbrali popis št. 11 v tabeli 1. Sindinamsko so sestoji nove asociacije tesno povezani z združbami skalnih razpok, še posebej s sestoji sintaksona *Potentillo clusianae-Campanuletum zoysii* var. geogr. *Primula carniolica*.

V drugem šopu, le trije popisi, so sestoji, ki smo jih obravnavali že v naši razpravi pred leti (Dakskobler 1998) kot sukcesijski stadij *Sesleria albicans-Pinus nigra*. To je progresivna razvojna stopnja, v kateri poleg vrst skalnih razpok in subalpinskih travišč že kar obilno uspevajo tudi vrste bazofilnih borovih gozdov (*Rhododendron hirsutum*, *Rhodothamnus chamaecistus, Pinus nigra*), pa tudi vrsti *Salix glabra* in *S. appendiculata* ter posamični poganjki bukve, črnega gabra in malega jesena. Ob ugodnih razmerah takšna kamnita travišča prerase črno borovje ali ruševje. To prehodno združbo v tem članku označujemo kot asociacijo s provizornim imenom *Pino nigrae-Seslerietum calcariae* nom. prov.

Popise tretjega šopa smo uvrstili v asociacijo *Primulo carniolicae-Seslerietum calcariae* ass. nova. To so kamnita travišča z dominantno modriko (*Sesleria caerulea* subsp. *calcaria* = *S. albicans*) in nekaterimi vrstami skalnih razpok (*Primula carniolica, Valeriana saxatilis*, *Paederota lutea*). Pred nekaj leti (Dakskobler 2003 b) smo že objavili fitocenološko tabelo s petimi popisi, ki smo jih takrat uvrstili v provizorni sintakson *Primulo carniolicae-Seslerietum albicantis* Dakskobler 2003 nom. prov. Pri primerjavi teh petih popisov s popisi 26–29 v tabeli 1 smo ugotovili,

da gre za podobno združbo. Sestavili smo novo fitocenološko tabelo, en pred leti objavljen popis smo izločili (ker je od ostalih nekoliko drugačen), tako novo asociacijo zdaj lahko tudi tipiziramo. Nomenklaturni tip (*holotypus*) je fitocenološki popis št. 3 v tabeli 2. Razlikovalnice asociacije so taksoni *Primula carniolica, Primula* x *venusta, Valeriana saxatilis* in *Paederota lutea*. Sestoji asociacije *Primulo carniolicae-Seslerietum calcariae* so sindinamsko povezani s sestoji asociacije *Primulo carniolicae-Potentilletum caulescentis*, nadaljnja sukcesija pa poteka v smeri združb razreda *Erico-Pinetea*. V submontanskem in spodnjem montanskem pasu so to največkrat grmišča iz asociacije *Rhododendro hirsuti-Ostryetum*, v montanskem in altimontanskem pasu pa sestoji asociacij *Fraxino orni-Pinetum nigrae* in *Pinetum mugo* s. lat.

Sestoje četrtega šopa (pet popisov) uvrščamo v varianto *Caricetum ferrugineae* var. *Astrantia carniolica* var. nova. To so kamnita vlažna travišča, ki smo jih popisali v žlebovih pod Zelenim robom in v Gamsarici, Martinčič (1958: 19) pa jih omenja tudi v grapah pod Poldanovcem. Te sestoje smo primerjali z našimi popisi asociacije *Caricetum ferrugineae* Lüdi 1921 s. lat. iz Julijskih Alp (predvsem iz Tolminsko-Bohinjskega grebena, nekaj popisov smo naredili tudi na Bovškem) in pri vseh uporabljenih metodah hierarhične klasifikacije in prav tako pri ordinacijski metodi glavnih koordinat so se ti popisi, skupaj še z dvema popisoma iz južnih Julijskih Alp – naredili smo ju na vlažnih gruščnatih policah pod Okroglico pri pl. Suha v Bohinju – razvrščali ločeno od ostalih popisov (slika 3). Menimo, da je to posebna oblika asociacije *Caricetum ferrugineae* s. lat., ki je sindinamsko povezana z združbami melišč. V tej združbi se poleg vrst subalpinskih travišč (*Carex ferruginea, Sesleria caerulea* subsp. *calcaria, Aster bellidiastrum, Laserpitium peucedanoides* in *Betonica alopecurus*) pogosto in (ali) obilno pojavljajo predvsem vrste *Astrantia carniolica*, *Adenostyles glabra* in *Calamagrostis varia* ter nekatere vrste vlažnih povirij. Razlikovalnici nove variante sta vrsti *Calamagrostis varia* in *Astrantia carniolica,* lokalno tudi vrste *Primula carniolica, Hladnikia pastinacifolia* in *Aquilegia bertolonii*.

V desetih popisih petega šopa je bolj ali manj dominantna vrsta *Carex mucronata*. Te sestoje po floristični sestavi in po rastiščnih razmerah, v katerih uspevajo (suhi, skalnati, vetrovni grebeni), lahko uvrstimo v asociacijo *Caricetum mucronatae* s. lat. Subalpinsko-alpinski sestoji z dominantno vrsto *Carex mucronata* so v Jugovzhodnih Apneniških Alpah fitocenološko še slabo dokumentirani (Surina 2004: 87, Surina 2005 a), prav tako pogledi na njihovo sinsistematsko vrednotenje niso enotni (Grabherr & al. 1993: 410–411, Surina & T. Wraber 2005: 105–106). Po doslej opravljenih primerjavah (Surina & Dakskobler 2005, Surina & Wraber 2005) smo ugotovili, da se preučeni sestoji z dominantno vrsto *Carex mucronata* iz Trnovskega gozda floristično bolj podobni sestojem te vrste iz Julijskih Alp, ki jih začasno uvrščamo v asociacijo *Caricetum mucronatae* (Br.-Bl. in Br.-Bl. & Jenny 1926) Tomaser 1977 (Surina 2004, 2005 a), kot pa sestojem ostnatega šaša na Snežniku – Surina & T. Wraber (2005) sta te sestoje uvrstila v asociacijo *Scabioso silenifoliae-Caricetum mucronatae* Surina & T. Wraber 2005. Od obeh primerjanih združb pa našo združbo razlikuje skupina razlikovalnic (*Primula carniolica, Hladnikia pastinacifolia, Phyteuma scheuchzerii* subsp. *columnae* in *Aquilegia bertolonii*). S primerjavo desetih popisov iz Trnovskega gozda in petih popisov iz Julijskih Alp, dva od njih je v doktorski nalogi objavil že Surina (2004, 2005 a) – tabela 4 in sliki 4 in 5, smo ugotovili, da se sestoji iz Trnovskega gozda floristično razmeroma dobro ločijo od sestojev iz Julijskih Alp. Sinsistematsko te razlike lahko vrednotimo kot dve geografski varianti iste asociacije (*Caricetum mucronatae* s. lat.), zato smo preučene sestoje uvrstili v novo geografsko varianto *Caricetum mucronatae* (Br.-Bl. in Br.-Bl. & Jenny 1926) Tomaser 1977 var. geogr. *Primula carniolica* var. geogr. nova. Njen nomenklaturni tip (*holotypus*) je fitocenološki popis št. 2 v tabeli 4, njene razlikovalnice pa taksoni *Primula carniolica, Hladnikia pastinacifolia*, *Phyteuma scheuchzerii* subsp. *columnae* in *Edraianthus graminifolius*. Sindinamsko so ti sestoji povezani predvsem z združbami skalnih razpok (*Primulo carniolicae-Potentilletum caulescentis*), deloma tudi s sestoji asociacije *Primulo carniolicae-Caricetum firmae*.

Popisov št. 45–52 za zdaj nismo uvrstili v nobeno asociacijo. Ti popisi so pri naših doslej opravljenih primerjavah precej odstopali in si tudi med seboj niso preveč podobni. Popisi št. 45–49 so kljub temu še najbolj podobni sestojem sintaksonov *Caricetum mucronatae* var. geogr. *Primula carniolica* in *Phyteumato-Potentilletum caulescentis*. Popis št. 52 bi lahko uvrstili v posebno obliko asociacije *Primulo carniolicae-Seslerietum calcariae*, popisa 50 in 51 pa sta floristično že precej podobna kamnitim gorskim traviščem iz zveze *Satureion subspicatae*, to je združbi, ki sta jo Kaligarič (1997) in Kaligarič & Poldini (1997) označila kot fitocenon z vrsto *Primula auricula*. Morda bi popisa, ki smo ju naredili pri Stanovem robu, lahko obravnavali kot samostojno asociacijo (*Saturejo liburnicae-Seslerietum calcariae* nom. prov.), ki bi jo še vedno uvrstili v razred *Elyno-Seslerietea*.

V sintezni tabeli (tabela 5) smo strnjeno prikazali vseh pet ugotovljenih sintaksonov in jih med seboj primerjali z ordinacijsko metodo glavnih koordinat (sliki 6 in 7). V ordinacijskem diagramu (slika 6) prva os (x) kaže gradient sušnosti oz. toploljubnosti. Na najbolj suhih rastiščih uspevajo sestoji sintaksona *Caricetum mucronatae* var. geogr. *Primula carniolica*, na relativno najbolj vlažnih (in hladnih) rastiščih pa sestoji variante *Caricetum ferrugineae* var. *Astrantia carniolica* in sestoji stadija *Pino nigrae-Seslerietum calcariae*. V tem gradientu so sestoji asociacije *Primulo carniolicae-Caricetum firmae* središčni (vmes med obema skrajnostma). Če primerjamo posamezne popise (slika 7), prva os še vedno kaže gradient sušnosti oz. toploljubnosti, medtem ko druga os (y) morda nakazuje gradient razvitosti tal (inicialna, surova tla združb *Primulo carniolicae-Caricetum firmae* in *Caricetum mucronatae* in koluvialno-deluvialna tla združbe *Caricetum ferrugineae*).

Analizirali smo tudi sestavo po skupinah diagnostičnih vrst in kot ponder upoštevali frekvenco (Fr.) in indeks pokrovnosti (Ic) – tabela 6. V treh opisanih združbah po deležu (ne glede na ponder) prevladujejo vrste razreda *Elyno-Seslerietea*, v stadiju *Pino nigrae-Seslerietum calcariae* vrste razreda *Erico-Pinetea*, v asociaciji *Primulo carniolicae-Seslerietum calcariae* pa so z razmeroma enakovrednimi deleži zastopane vrste razredov *Asplenietea trichomanis*, *Erico-Pinetea* in *Elyno-Seslerietea*. To je izrazito prehodna združba oz. sukcesijska stopnja v nizu od združb skalnih razpok proti bazofilnim grmiščem.

Ugotavljamo, da sestoji novo opisanih sintaksonov navadno uspevajo na zelo majhnih površinah (zato so v primerjavi s podobnimi jugovzhodnoalpskimi združbami floristično precej obubožani) in so sindinamsko povezani z združbami skalnih razpok, s katerimi imajo tudi precej podobno floristično sestavo. Človekovi posegi na rastiščih teh združb so zanemarljivi, njihova biotopska vloga pa je velika, saj so to rastišča v evropskem merilu pomembnih vrst (*Primula carniolica, Hladnikia pastinacifolia, Aquilegia bertolonii* – Čušin & al. (2004)).

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10. APPENDIX

Table 1: Sedge swards and stony grassland communities from the order *Seslerietalia caeruleae* on the northern edge of the Trnovski gozd plateau.

Tabela 1: Združbe blazinastega rastja in kamnitih travišč iz reda *Seslerietalia caeruleae* na severnem robu Trnovskega gozda.

			I																						II			II			
	Number of relevé (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
	Altitude in m (Nadmorska v. v m)		1000	990	1180	1150	980	1150	1270	1250	1280	1270	1150	1190	1140	1120	1220	580	550	1150	1160	1090	1140	840	960	970	700	1240	1130	610	1130
	Aspect (Lega)		N	NE	W	N	NE	NW	SW	NW	NE	NE	NNW	NW	NE	NW	N	NE	NE	NE	E	NW	NW	NE	N	NE	NE	N	N	N	N
	Slope in degrees (Nagib v stopinjah)		80	80	80	85	50	50	70	70	70	70	70	80	45	80	70	70	45	25	50	60	80	80	30	45	45	45	50	70	80
	Parent material (Matična podlaga)		D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
	Soil (Tla)		Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li
	Stoniness in % (Kamnitost v %)		50	70	80	70	20	30	20	30	5	50	50	70	10	60	20	30	20	50	40	60	70	50	20	40	30	10	10	10	50
	Cover in % (Zastiranje v %):																														
	Shrub layer (Grmovna plas)	E2																	10					5	30	30	30	5			2
	Herb layer (Zeliščna plast)	E1	50	30	20	30	80	70	80	70	100	50	50	30	90	40	80	70	70	50	60	60	25	40	70	70	80	90	100	80	40
	Moss layer (Mahovna plast)	E0		70		2											5	5					20	5	5	10	5	20		20	
	Relevé area (Velikost popis. ploskve)	m2	10	4	10	8	2	4	2	10	2	4	6	6	2	5	4	4	5	10	5	5	10	4	20	20	20	2	5	5	10
	Number of species (Število vrst)		20	20	17	17	29	18	17	29	16	21	37	18	20	23	20	27	30	27	28	19	20	20	42	44	43	32	20	25	20
	Date of taking relevé (Datum popisa)		5.19.2004	20.8.2003	27.8.2004	26.8.2003	20.8.2003	26.8.2003	27.8.2004	27.8.2004	27.8.2004	27.8.2004	20.8.2003	20.8.2003	22.8.2003	27.8.2004	13.8.2003	26.8.2003	26.8.2003	27.8.2004	27.8.2004	20.7.2004	27.8.2004	5.7.2001	31.7.1997	31.7.1997	31.7.1997	13.8.2003	20.7.2004	28.9.2004	20.7.2004
	Locality (Nahajališče)		Poldanovec	Poldanovec	Zeleni rob	Stanov rob	Stanov rob	Stanov rob	Zeleni rob	Zeleni rob	Zeleni rob	Zeleni rob	Poldanovec	Poldanovec	Stanov rob	Zeleni rob	Sončni rob	Govčnik	Govčnik	Zeleni rob	Zeleni rob	Hudournik	Zeleni rob	Gamsarica	Poldanovec	Poldanovec	Poldanovec	Sončni rob	Hudournik	Klavžarica	Hudournik
	Quadrant (Kvadrant)		9949/3	9949/3	9949/3	9948/4	9948/4	9948/4	9949/3	9949/3	9949/3	9949/3	9949/3	9949/3	9948/4	9949/3	0049/1	9948/4	9948/4	9949/3	9949/3	9949/1	9949/3	0049/2	9949/3	9949/3	9949/3	0049/1	9949/1	9949/4	9949/1
	Differential species of the syntaxa																														
	Razlikovalne vrste sintaksonov																														
AT	*Primula carniolica*	E1	1	+	r	1	+	+	r	+	.	+	1	+	1	+	1	+	+	.	1	+	+	1	r	+	.	+	3	1	1
TR	*Astrantia carniolica*	E1	+	r	+	1	.	.	r	.	.	.	.	+	1	+	+	1	1	1	1	+	+	+	1	+	.	.	.	.	.
TR	*Aquilegia bertolonii*	E1	.	.	.	+	1	+	+	r	.	.	1	.	+	+	.	1	+	.	.	.	.	+	+	+	.	+	.	.	.
TR	*Hladnikia pastinacifolia*	E1	.	.	.	.	.	.	1	1	+	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Caricion firmae																														
	Carex firma	E1	2	2	1	1	3	4	2	3	3	3	3	2	4	3	4	3	3	3	3	3	2	1	1	1	1	+	.	.	.
	Dryas octopetala	E1	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.
	Saxifraga caesia	E1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	r	.	.	.	.
	Helianthemum alpestre	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Gentiana nivalis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	r	.	.
	Caricion austroalpinae																														
	Laserpitium peucedanoides	E1	.	.	.	.	+	+	1	1	.	.	+	.	.	+	+	.	+	+	+	+	.	+	+	+	+	+	1	+	.
	Asperula aristata	E1	.	.	.	.	+	.	.	.	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	.	+
	Ranunculus hybridus	E1	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	r	.	.	.	.	.	.
	Caricion ferrugineae																														
	Carex ferruginea	E1	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	+	.	.	.	.	+	.
	Seslerion juncifoliae																														
	Edraianthus graminifolius	E1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ES	***Elyno-Seslerietea***																														
	Sesleria caerulea subsp. *calcaria*	E1	3	+	+	1	3	3	3	3	4	1	2	1	2	1	1	3	3	1	1	2	+	2	3	2	3	3	2	4	3
	Carex mucronata	E1	.	+	.	.	1	.	1	1	.	1	+	.	.	.	1	+	+	.	.	+	.	+	.	.	.	+	1	+	+

ABBREVIATIONS – OKRAJŠAVE

Parent material (Geološka podlaga)
A – limestone – apnenec
D – dolomite – dolomit
DA – dolomite limestone – dolomitni apnenec

Soil types (Talni tipi)
Li – Lithosols – litosol

IV					V																		I			II			III			IV			V			Pr(Total)
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	Pr.	Fr.	Ic	Pr.	Fr.	Ic	Pr.	Fr.	Ic	Pr.	Fr.	Ic	Pr.	Fr.	Ic	
840	1260	1120	1150	1210	1280	1270	1275	1270	1220	1240	1120	1110	1115	1105	1280	800	1285	1240	1165	1165	1140	890																
N	NE	N	NW	E	NE	NE	S	S	SE	NE	NE	E	NNE	SW	N	W	NE	E	E	SE	E	NE																
45	45	35	20	40	60	45	15	40	45	70	70	45	60	20	30	40	45	80	85	45	45	20																
D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D																
Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	R																
60	20	30	10	10	40	60	30	20	30	50	70	50	50	60	10	60	30	70	60	30	30	10																
10		20														5	2																					
60	80	70	100	100	60	40	70	80	70	50	40	60	70	70	90	70	70	20	35	70	80	90																
	20					10	10			5						5		10	5			40																
4	10	10	10	10	2	4	4	10	4	4	5	5	10	5	4	20	2	1	8	10	10	10																
27	26	21	22	25	23	21	20	20	24	14	20	21	21	27	32	28	20	13	21	29	33	28																
7.5.2001	8.27.2004	8.27.2004	8.27.2004	8.27.2004	8.20.2003	8.20.2003	8.27.2004	8.27.2004	8.13.2003	8.13.2003	7.20.2004	7.20.2004	7.20.2004	7.20.2004	8.27.2004	7.5.2001	8.20.2003	8.13.2003	8.26.2003	8.26.2003	8.26.2003	7.20/2004																
Gamsarica	Zeleni rob	Zeleni rob	Zeleni rob	Zeleni rob	Poldanovec	Poldanovec	Zeleni rob8a	Zeleni rob10	Sončni rob	Sončni rob	Hudournik	Hudournik	Hudournik	Hudournik	Zeleni rob	Gamsarica	Poldanovec	Sončni rob	Stanov rob	Stanov rob	Stanov rob	Hudournik																
0049/2	9949/3	9949/3	9949/3	9949/3	9949/3	9949/3	9949/3	9949/3	0049/1	0049/1	9949/1	9949/1	9949/1	9949/1	9949/3	0049/2	9949/3	0049/1	9948/4	9948/4	9948/4	9949/1																
+	.	.	.	.	+	.	.	.	.	.	+	1	+	+	.	.	.	.	.	.	.	1	20	91	23	2	67	11	4	100	42	1	20	4	5	50	12	33
1	1	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	16	73	18	2	67	19	0	0	0	5	100	42	0	0	0	24
+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	11	50	12	2	67	15	1	25	6	1	20	4	1	10	2	16
.	r	.	.	.	3	1	1	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	23	7	0	0	0	0	0	0	1	20	2	4	40	17	10
+	.	.	.	.	+	1	r	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	22	100	68	3	100	33	1	25	6	1	20	4	3	30	7	31
.	.	.	.	.	1	2	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	1	5	2	2	67	15	0	0	0	0	0	0	2	20	9	6
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5	2	3	100	22	0	0	0	0	0	0	0	0	0	4
.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	0	0	0	0	0	0	0	0	0	2	20	7	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	0	0	0	1	25	3	0	0	0	0	0	0	1
+	+	.	+	1	.	.	.	+	.	.	.	1	+	.	.	.	.	.	.	.	.	.	12	55	13	3	100	22	3	75	19	4	80	20	3	30	8	25
.	.	.	.	.	.	.	+	1	+	.	1	+	1	1	+	1	.	.	.	.	+	.	3	14	3	1	33	7	2	50	11	0	0	0	7	70	20	16
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5	2	1	33	4	0	0	0	0	0	0	0	0	0	2
1	4	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	14	3	1	33	7	1	25	6	5	100	53	0	0	0	10
.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5	1	0	0	0	0	0	0	0	0	0	2	20	4	3
1	+	2	3	4	3	2	3	4	3	2	1	2	2	2	3	3	2	+	1	3	3	3	22	100	53	3	100	70	4	100	75	5	100	56	10	100	63	52
.	.	.	.	.	1	2	3	3	3	2	2	3	2	3	+	1	2	1	1	1	.	.	11	50	14	0	0	0	4	100	25	0	0	0	10	100	64	31

			I																					II			II			
	Number of relevé (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
	Aster bellidiastrum	E1	+	+	+	+	1	.	.	+	.	.	+	+	+	1	+	1	1	+	1	1	1	+	+	+	+	.	.	.	.
	Gentiana clusii	E1	.	.	.	.	+	+	r	+	+	+	1	.	+	+	+	.	1	.	+	.	.	+	.	.	.	+	.	.	.
	Hieracium villosum	E1	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	+	.	+	.	+	.	.	.	.	+
	Betonica alopecuros	E1	.	.	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.
	Thymus alpigenus	E1	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.
	Anthyllis vulneraria subsp. *alpestris*	E1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Senecio abrotanifolius	E1	.	.	.	.	+	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.
	Carduus crassifolius	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Juncus monanthos	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	+	.	.	.	.	.	.
	Leontopodium alpinum	E1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Achillea clavenae	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Phyteuma orbiculare	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Arabis ciliata	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Campanula scheuchzeri	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.
	Polygala alpestris	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Silene alpestris	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.
AT	***Asplenietea trichomanis***																														
	Valeriana saxatilis	E1	+	2	2	1	1	2	1	2	1	1	+	+	+	1	1	1	1	+	1	1	1	1	1	1	1	2	2	1	1
	Paederota lutea	E1	+	1	1	1	.	+	+	+	.	.	+	.	.	1	+	.	+	+	+	+	+	1	+	+	.	1	1	+	+
	Phyteuma scheuchzeri subsp. *columnae*	E1	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	+	.	.	.	+	.	.	.	.	.	.	+	+	+
	Primula auricula	E1	.	.	.	.	.	.	r	.	+	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.
	Potentilla caulescens	E1	+	r	.	r	.	.	.	.	.	.	+	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	+
	Campanula cochleariifolia	E1	+	1	.	1	.	.	1	.	.	.	.	.	.	.	.	.	.	+	+	.	+	.	.	+	.	.	.	.	.
	Saxifraga crustata	E1	1	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.
	Asplenium ruta-muraria	E1	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	r	+
	Saxifraga squarrosa	E1	.	r	.	.	.	.	.	.	.	r	r	1	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.
	Bupleurum petraeum	E1	.	.	.	.	.	+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Asplenium viride	E1	.	.	+	+	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.
	Kernera saxatilis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.
	Potentilla clusiana	E1	.	.	r	.	.	.	.	.	.	+	.	2	.	.	.	.	.	.	r	.	.	.	.	.	.	.	.	.	.
	Athamanta turbith	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Carex brachystachys	E1	.	.	+	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Daphne alpina	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Dianthus sylvestris	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Festuca stenantha	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Rhamnus pumilus	E1	.	.	.	.	.	.	.	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Seseli gouanii	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Campanula justiniana	E1	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Primula x *venusta*	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.
	Sedum album	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Silene hayekiana	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
TR	***Thlaspietea rotundifolii***																														
	Campanula cespitosa	E1	.	.	.	.	+	.	.	+	+	+	+	+	+	+	.	+	+	.	.	+	+	.	.	+	+	.	.	+	.
	Soldanella minima	E1	+	+	r	.	.	.	.	.	.	.	.	+	.	.	.	.	.	2	+	1	+	.	+	+	.	.	.	.	.
	Hieracium bifidum	E1	.	.	.	.	.	.	.	r	.	.	r	.	+	+	.	+	.	.	.	.	.	.	r	.	.	.	+	+	.
	Adenostyles glabra	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1	+	.	.	.	+	.	+	.	.	.	.
	Hieracium porrifolium	E1	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	+	.	.	.	.	.	.	.	.	+	.	.	.	.
	Gymnocarpium robertianum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.
	Festuca nitida	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.
	Biscutella laevigata	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Cystopteris montana	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

IV					V																		I			II			III			IV			V			Pr(Total)
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52																
+	2	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.	18	82	22	3	100	22	0	0	0	4	80	24	0	0	0	25
+	.	.	.	.	+	.	1	.	+	+	.	.	.	.	+	.	.	.	.	.	.	.	13	59	14	0	0	0	1	25	6	1	20	4	4	40	10	20
.	.	.	.	.	.	.	+	.	+	.	+	+	+	+	.	.	.	.	r	.	.	.	4	18	4	1	33	7	1	25	6	0	0	0	6	60	13	13
+	.	.	+	2	.	.	.	1	+	.	.	.	.	.	.	.	.	.	.	+	.	1	2	9	2	1	33	7	1	25	6	3	60	20	2	20	6	11
.	.	.	.	.	.	.	1	+	+	+	.	.	.	.	+	1	.	.	.	.	.	.	1	5	1	0	0	0	1	25	6	0	0	0	4	40	10	8
.	.	.	.	.	.	.	.	.	+	.	+	.	1	1	.	.	.	.	.	.	.	.	1	5	1	0	0	0	0	0	0	0	0	0	4	40	11	5
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	2	9	2	1	33	7	0	0	0	0	0	0	0	0	0	4
.	.	.	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	.	0	0	0	0	0	0	0	0	0	0	0	0	1	10	1	3
.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5	2	1	33	7	0	0	0	1	20	7	0	0	0	3
.	.	.	.	.	r	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5	1	0	0	0	0	0	0	0	0	0	2	20	3	3
.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	0	0	0	0	0	0	0	0	0	0	0	0	1	10	3	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	1	33	11	0	0	0	0	0	0	0	0	0	1
.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	0	0	0	0	0	0	0	0	0	0	0	0	1	10	2	1
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	1	33	7	0	0	0	0	0	0	0	0	0	1
+	.	.	+	.	+	1	.	r	.	.	1	1	1	1	.	.	+	.	.	.	.	.	22	100	35	3	100	33	4	100	44	2	40	9	7	70	20	39
+	+	.	.	+	.	.	.	r	.	.	.	.	+	.	+	.	.	.	.	.	.	.	16	73	19	2	67	15	4	100	28	3	60	13	2	20	3	28
.	.	.	.	1	.	.	.	1	+	+	.	+	.	+	+	.	.	+	r	+	+	.	3	14	3	0	0	0	3	75	17	1	20	7	5	50	12	17
.	.	.	.	.	r	.	+	r	+	1	.	.	.	.	.	.	.	+	2	1	1	.	3	14	2	0	0	0	1	25	6	0	0	0	5	50	10	13
r	.	.	.	+	.	.	+	.	+	.	.	.	.	.	.	.	.	+	.	.	.	.	6	27	5	0	0	0	1	25	6	2	40	7	2	20	4	12
.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	7	32	9	1	33	7	0	0	0	1	20	4	0	0	0	9
.	.	.	.	.	.	+	.	.	.	1	.	.	.	.	.	.	1	.	+	.	.	.	3	14	4	1	33	7	1	25	6	0	0	0	2	20	6	9
.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	+	.	.	+	.	+	.	2	9	2	0	0	0	2	50	8	0	0	0	1	10	2	9
.	.	.	.	.	r	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	18	3	1	33	7	0	0	0	0	0	0	2	20	3	7
.	.	.	.	.	r	1	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	2	9	2	0	0	0	0	0	0	0	0	0	2	20	4	6
.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	3	14	3	1	33	7	0	0	0	1	20	2	0	0	0	6
.	.	.	.	.	.	.	r	.	.	r	.	.	.	+	.	.	.	+	.	.	.	.	1	5	1	0	0	0	0	0	0	0	0	0	3	30	4	5
.	.	.	.	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	18	5	0	0	0	0	0	0	0	0	0	1	10	1	5
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	1	.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	9	2	0	0	0	0	0	0	0	0	0	0	0	0	2
.	.	.	.	.	.	.	.	.	.	.	r	.	.	.	.	.	.	.	+	.	.	.	0	0	0	0	0	0	0	0	0	0	0	0	1	10	1	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	r	.	+	.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	1	5	1	0	0	0	0	0	0	0	0	0	1	10	2	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	1
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	0	0	0	1	25	6	0	0	0	0	0	0	1
.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	0	0	0	0	0	0	0	0	0	0	0	0	1	10	2	1
.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	0	0	0	0	0	0	0	0	0	0	0	0	1	10	2	1
r	r	.	.	1	.	+	+	+	+	.	+	1	+	1	+	+	+	+	+	.	+	+	12	55	12	2	67	15	1	25	6	3	60	11	8	80	20	33
.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	8	36	10	2	67	15	0	0	0	1	20	4	0	0	0	11
.	.	.	.	+	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	5	23	4	1	33	4	2	50	11	1	20	4	1	10	2	10
1	+	2	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	14	4	2	67	15	0	0	0	4	80	27	0	0	0	9
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	+	.	3	14	3	1	33	7	0	0	0	0	0	0	0	0	0	6
.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	2	67	15	0	0	0	1	20	2	0	0	0	3
.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5	1	0	0	0	0	0	0	1	20	4	0	0	0	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	0	0	0	0	0	0	1	20	2	0	0	0	1

			I																							II			II			
	Number of relevé (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
FB	***Festuco-Brometea***																														
	Globularia cordifolia	E1	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Linum catharticum	E1	.	.	.	.	1	.	.	+	.	+	+	.	.	.	.	.	+	+	+	.	.	+	.	+	.	.	.	.	.
	Lotus corniculatus s. lat.	E1	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.
	Buphthalmum salicifolium	E1	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	.
	Teucrium montanum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Carex humilis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Viola hirta	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Ajuga genevensis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Coronilla vaginalis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Galium lucidum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Helianthemum ovatum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Hippocrepis comosa	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Polygonatum odoratum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Satureja subspicata	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Stachys subcrenata	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Carex flacca	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Carlina acaulis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Centaurea bracteata	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Centaurea triumfettii	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Cuscuta epithymum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Dianthus monspessulanus	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Pimpinella saxifraga	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Trifolium montanum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SC	***Scheuchzerio-Caricetea fuscae***																														
	Pinguicula alpina	E1	1	.	+	.	.	.	.	.	.	.	.	+	+	1	+	1	1	1	+	1	1	.	+	1	+	.	+	r	.
	Tofieldia calyculata	E1	+	.	.	.	.	+	.	.	.	.	+	+	+	+	.	1	1	1	1	+	+	+	1	+	1	.	.	+	.
	Parnassia palustris	E1	.	.	.	.	.	.	.	.	.	.	.	+	+	+	r	1	1	1	1	.	.	.	1	+	+	.	.	.	.
MA	***Mulgedio-Aconitetea***																														
	Salix glabra	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	1	.	.	.	.	+
	Salix glabra	E1	+	.	.	.	+	+	.	.	.	+	.	+	.	+	r	+	1	1	.	.	+	+	.	+	.	+	2	.	.
	Viola biflora	E1	.	r	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	+	.	r	.	.	.
	Salix appendiculata	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	.	.	.	+
	Salix appendiculata	E1	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	+	2	.	.
	Salix waldsteiniana	E1	.	.	.	.	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Sorbus chamaemespilus	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
EP	***Erico-Pinetea***																														
	Rhodothamnus chamaecistus	E1	2	+	+	1	+	2	2	2	3	2	1	+	1	+	1	1	1	.	+	.	1	+	1	1	1	3	.	2	1
	Rhododendron hirsutum	E1	1	r	+	.	+	+	1	+	1	.	.	.	+	+	+	+	1	+	+	.	+	.	1	1	+	2	2	+	+
	Allium ericetorum	E1	.	.	.	.	+	.	.	.	+	.	+	.	.	.	+	+	+	.	.	.	.	.	.	.	+	+	.	.	.
	Erica carnea	E1	.	.	.	.	.	.	.	1	1	+	+	.	+	.	.	.	1	.	.	.	.	.	+	.	1	2	3	1	.
	Euphrasia cuspidata	E1	.	.	.	.	1	+	.	.	1	1	.	.	.	.	.	.	+	.	.	.	.	.	+	+	.	.	.	.	.
	Calamagrostis varia	E1	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	+	+	.	+	.	.	.	.
	Polygala chamaebuxus	E1	.	.	.	.	+	.	.	+	.	+	+	.	.	.	.	.	1	.	+	.	.	.	.	.	+	.	.	1	.
	Arctostaphylos uva-ursi	E1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Gymnadenia odoratissima	E1	.	.	.	.	.	.	.	r	.	.	.	.	.	+	.	.	.	.	.	.	.	.	+	+	.	+	.	.	.
	Carex ornithopoda	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	r	.	.	.	.	.	.
	Pinus nigra	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	1	.	.	.	.
	Pinus nigra	E1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	+	+	+	.	.	.	.
	Cotoneaster tomentosus	E1	.	.	.	.	+	.	.	.	.	.	.	.	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Rubus saxatilis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	1	.	.
	Amelanchier ovalis	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	r	.	.	.	.

IV					V																																	
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	I			II			III			IV			V			Pr(Total)
.	.	.	.	.	+	+	2	1	+	.	1	1	1	1	+	+	.	+	+	1	.	.	2	9	2	0	0	0	0	0	0	0	0	0	9	90	29	16
+	.	.	.	1	+	.	+	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	8	36	9	1	33	7	0	0	0	2	40	11	2	20	4	15
.	.	.	.	+	+	.	r	.	+	.	+	.	.	.	1	.	+	.	.	+	+	+	1	5	2	0	0	0	2	50	11	1	20	4	4	40	8	13
.	+	.	+	1	.	.	.	+	.	.	.	.	.	.	.	1	.	.	.	.	.	+	1	5	1	1	33	7	1	25	6	3	60	16	1	10	2	9
.	.	.	.	.	.	.	1	1	+	.	.	1	.	+	.	1	.	.	+	1	1	.	0	0	0	0	0	0	0	0	0	0	0	0	5	50	14	9
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	+	.	.	2	3	.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
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.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	0	0	0	0	0	0	0	0	0	0	0	0	1	10	2	2
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.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	+	.	.	0	0	0	0	0	0	0	0	0	0	0	0	1	10	2	2
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+	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	12	55	16	3	100	26	2	50	8	4	80	18	0	0	0	21
+	.	.	1	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	.	.	13	59	15	3	100	30	1	25	6	2	40	11	2	20	4	21
+	1	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	8	36	10	3	100	26	0	0	0	4	80	24	0	0	0	15
1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	2	67	30	1	25	6	2	40	13	0	0	0	5
.	.	+	+	+	.	.	.	+	+	.	+	+	1	.	.	.	r	.	.	.	.	.	12	55	13	1	33	7	2	50	19	3	60	13	5	50	12	24
.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	23	5	1	33	7	1	25	3	1	20	4	0	0	0	8
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	3	100	22	1	25	6	0	0	0	0	0	0	4
.	.	+	.	r	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	2	9	2	0	0	0	2	50	19	2	40	7	1	10	2	7
.	.	.	.	.	.	.	.	.	+	.	.	.	.	+	.	.	.	.	.	.	.	.	1	5	1	0	0	0	0	0	0	0	0	0	2	20	4	3
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r	r	.	.	.	+	+	+	.	1	+	1	1	1	.	+	.	.	1	.	.	.	.	20	91	34	3	100	33	3	75	42	2	40	4	8	80	22	38
+	+	+	1	+	.	.	.	.	.	.	.	+	1	+	+	.	+	.	.	.	.	.	16	73	18	3	100	30	4	100	39	5	100	24	3	30	8	33
.	.	.	.	+	.	+	+	1	+	+	.	+	+	+	+	.	.	+	+	1	1	.	6	27	6	1	33	7	1	25	6	1	20	4	8	80	19	22
.	.	.	.	.	.	.	.	.	1	.	+	.	+	.	4	1	.	.	.	+	.	+	6	27	8	2	67	19	3	75	42	0	0	0	3	30	8	18
+	.	.	+	.	1	+	.	.	.	.	1	1	1	.	1	+	1	.	.	.	.	.	5	23	7	2	67	15	0	0	0	2	40	9	5	50	16	17
2	2	3	2	1	.	.	.	+	+	.	.	.	.	.	.	+	.	.	.	+	1	.	4	18	4	2	67	15	0	0	0	5	100	56	2	20	4	16
.	.	.	1	.	.	.	.	1	.	.	.	.	.	.	+	.	.	.	.	1	.	+	6	27	7	1	33	7	1	25	8	1	20	7	1	10	3	13
.	.	.	.	.	r	.	3	.	+	2	.	.	.	.	3	.	.	.	.	.	.	.	2	9	2	0	0	0	0	0	0	0	0	0	4	40	17	7
.	.	.	+	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	2	9	2	2	67	15	1	25	6	1	20	4	1	10	2	7
.	.	.	.	r	.	.	.	.	.	.	.	+	.	.	1	.	+	.	.	.	.	+	0	0	0	1	33	4	0	0	0	1	20	2	1	10	2	6
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.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	2	9	2	0	0	0	0	0	0	0	0	0	1	10	2	4
.	.	.	.	.	.	.	.	.	.	.	r	.	.	.	.	.	.	.	.	.	.	.	0	0	0	1	33	7	2	50	14	0	0	0	1	10	1	4
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			I																							II			II			
	Number of relevé (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
	Amelanchier ovalis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Genista radiata	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Pinus mugo	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	+
	Pinus mugo	E1	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Carex alba	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.
	Cotoneaster integerrimus	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.
	Epipactis atrorubens	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Cirsium erisithales	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.
	Genista januensis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Juniperus alpina	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Leontodon incanus	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Pyrola rotundifolia	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.
VP	***Vaccinio-Piceetea***																														
	Picea abies	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.
	Picea abies	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	r	r	.	.	.	+	.	+	.	.	.	r	r
	Homogyne sylvestris	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	+	.	+	.	.	+	.
	Clematis alpina	E1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	.	.
	Hieracium murorum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	r	.	.	.	.
	Rosa pendulina	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.
	Aposeris foetida	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Gentiana asclepiadea	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.
	Solidago virgaurea	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Vaccinium myrtillus	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Polystichum lonchitis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FS	***Fagetalia sylvaticae***																														
	Acer pseudoplatanus	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.
	Acer pseudoplatanus	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	.	.	r	+	+	.	.	.	.
	Cyclamen purpurascens	E1	.	.	.	.	+	.	r	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	.	.	.
	Fagus sylvatica	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.
	Fagus sylvatica	E1	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	.	.	.	.
	Laburnum alpinum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	+	.	.	.	.
	Helleborus niger	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.
	Omphalodes verna	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Daphne mezereum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Knautia drymeia	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Lathyrus vernus	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	r	.	.	.	.	.	.
	Lilium martagon	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Melica nutans	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.
	Mercurialis perennis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
QP	***Quercetalia pubescentis***																														
	Ostrya carpinifolia	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.
	Ostrya carpinifolia	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	r	.	.	.	.	.	.	.	+	.	.	+	.
	Fraxinus ornus	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.
	Fraxinus ornus	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	.
	Convallaria majalis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Sorbus aria	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Sorbus aria	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	r	.	.	.	.
QF	***Querco-Fagetea***																														
	Hepatica nobilis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Corylus avellana	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.
	Cruciata glabra	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Primula vulgaris	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

IV					V																		I			II			III			IV			V			Pr(Total)
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52																
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.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	0	0	0	2	67	15	0	0	0	0	0	0	0	0	0	3
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	3	14	2	1	33	7	2	50	6	0	0	0	0	0	0	7
.	+	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5	1	2	67	15	1	25	6	2	40	11	0	0	0	6
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5	1	1	33	7	1	25	6	0	0	0	0	0	0	3
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	2	67	11	0	0	0	0	0	0	0	0	0	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	0	0	0	0	0	0	1	25	6	0	0	0	0	0	0	2
.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	0	0	0	0	0	0	1	20	4	0	0	0	1
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	1	33	7	0	0	0	0	0	0	0	0	0	1
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r	r	+	.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	3	14	3	3	100	19	0	0	0	4	80	11	0	0	0	11
.	+	+	.	+	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	+	3	14	3	2	67	15	1	25	6	3	60	13	1	10	6	11
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	1	33	7	0	0	0	0	0	0	0	0	0	1
r	+	+	+	.	.	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5	1	3	100	22	0	0	0	4	80	16	1	10	1	9
.	.	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	9	2	1	33	7	0	0	0	2	40	9	0	0	0	5
.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	0	0	1	33	7	0	0	0	1	20	4	0	0	0	3
.	.	.	.	r	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	0	0	0	0	0	0	0	0	0	1	20	2	0	0	0	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	1	5	1	1	33	7	1	25	6	0	0	0	0	0	0	4
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	r	.	.	.	.	.	.	0	0	0	1	33	7	0	0	0	0	0	0	0	0	0	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	2
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.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	0	0	0	0	0	0	0	0	0	1	20	4	0	0	0	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	1	33	7	0	0	0	0	0	0	0	0	0	1
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			I																							II			II			
	Number of relevé (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
O	**Other species (Druge vrste)**																														
	Molinia caerulea subsp. *arundinacea*	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	2	.	.	.	.	.	.	+	1	.	.	.	.
	Juniperus communis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Dactylorhiza maculata agg.	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Festuca rubra agg.	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Festuca sp.	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Potentilla erecta	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	r	.	.	.	.
	Salix caprea	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Salix caprea	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Sorbus aucuparia	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML	**Mosses and lichens (Mahovi in lišaji)**																														
	Tortella tortuosa	E0	.	.	.	.	.	+	.	+	.	+	+	.	.	.	.	.	.	.	+	+	+	.	+	+	+	.	.	+	+
	Neckera crispa	E0	.	.	.	+	+	+	.	+	.	.	+	+	.	.	.	.	+	.	.	+	.	.	.	+	.	+	+	2	1
	Orthothecium rufescens	E0	.	+	+	+	.	.	.	1	.	.	.	+	.	+	+	+	.	+	+	.	1	+	.	+	.	.	.	.	.
	Ctenidium molluscum	E0	.	.	.	.	.	+	.	.	.	.	+	.	+	.	+	.	+	.	+	.	+	.	.	.	.	1	.	1	1
	Fissidens dubius	E0	.	.	.	+	.	.	.	+	.	.	.	.	.	+	.	.	+	.	.	.	.	.	.	+	+	.	.	+	.
	Tortella sp.	E0	+	1	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.
	Marchantia polymorpha	E0	.	.	.	.	.	.	.	+	.	.	.	.	.	+	.	+	.	+	+	+	+	.	.	.	.	.	.	.	.
	Schistidium apocarpum	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+
	Rhytidiadelphus triquetrus	E0	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	1	.	.	.
	Dicranum sp.	E0	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Grimmia pulvinata	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Homalothecium sp.	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Hylocomium splendens	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.
	Solorina saccata	E0	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Campylium stellatum	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Dicranum scoparium	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.
	Scleropodium purum	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Cladonia sp.	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

I *Primulo carniolicae-Caricetum firmae*
II *Pino nigrae-Seslerietum calcariae* nom. prov.
III *Primulo carniolicae-Seslerietum calcariae*
IV *Caricetum ferrugineae* var. *Astrantia carniolica*
V *Caricetum mucronatae* var. geogr. *Primula carniolica*

IV					V																		I			II			III			IV			V			Pr(Total)
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52																
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	2	9	4	2	67	19	0	0	0	0	0	0	0	0	0	5
.	.	.	.	.	.	.	.	.	.	.	.	.	r	+	.	.	.	.	.	.	.	.	0	0	0	0	0	0	0	0	0	0	0	0	2	20	3	2
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.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	r	.	.	.	.	.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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.	.	+	+	.	.	.	+	.	.	1	1	+	.	1	.	+	.	.	+	+	+	.	7	32	7	3	100	22	2	50	11	2	40	9	5	50	14	23
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	8	36	8	1	33	7	4	100	33	0	0	0	0	0	0	14
.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	12	55	13	1	33	7	0	0	0	1	20	7	0	0	0	14
.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	7	32	7	0	0	0	3	75	25	1	20	4	0	0	0	12
.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	4	18	4	2	67	15	1	25	6	0	0	0	1	10	2	9
.	.	.	.	.	+	.	.	.	.	.	+	.	.	.	+	.	.	1	.	.	.	.	4	18	5	0	0	0	0	0	0	0	0	0	2	20	4	8
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	7	32	7	0	0	0	0	0	0	0	0	0	0	0	0	7
.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	+	.	+	+	.	+	.	0	0	0	0	0	0	1	25	6	0	0	0	2	20	4	7
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	5	1	1	33	7	1	25	8	0	0	0	0	0	0	4
.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	1	5	1	0	0	0	0	0	0	0	0	0	1	10	3	3
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.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	0	0	0	0	0	0	0	1	20	4	0	0	0	1
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.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Table 2: The association *Primulo carniolicae-Seslerietum calcariae* ass. nova on the northern edge of the Dinaric mountains of Slovenia.

Tabela 2: Asociacija *Primulo carniolicae-Seslerietum calcariae* ass. nova na severnem robu Dinarskega gorstva v Slovenije.

	Number of relevé (Številka popisa)		1	2	3	4	5	6	7	8			
	Altitude in m (Nadmorska višina v m)		1240	1130	610	1130	210	225	210	670			
	Aspect (Lega)		N	N	N	N	N	N	N	NW			
	Slope in degrees (Nagib v stopinjah)		45	50	70	80	50	40	45	40			
	Parent material (Matična podlaga)		D	D	D	D	D	D	D	D			
	Soil (Tla)		Li	Li	Li	Li	Li	Li	Li	Li			
	Stoniness in % (Kamnitost v %)		10	10	10	50	30	20	20	10			
	Cover in % (Zastiranje v %):												
	Shrub layer (Grmovna plas)	E2a	5			2		5	10				
	Herb layer (Zeliščna plast)	E1	90	100	80	40	60	80	80	80			
	Moss layer (Mahovna plast)	E0	20		20		20	10	10				
	Relevé area (Velikost popisne ploskve)	m2	2	5	5	10	4	4	10	5			
	Number of species (Število vrst)		32	20	25	20	15	21	28	22			
	Date of taking relevé (Datum popisa)		13.8.2003	20.7.2004	28.9.2004	20.7.2004	22.4.2002	22.4.2002	22.4.2002	30.5.2003			
	Locality (Nahajališče)		Sončni rob	Hudournik	Klavžarica	Hudournik	Prvejk	Prvejk	Prvejk	Skopica			
	Quadrant (Kvadrant)		0049/1	9949/1	9949/4	9949/1	9949/1	9948/2	9948/2	9948/2			
	Differential species of the association										Pr.	Fr.	Ic
	Razlikovalne vrste asociacije												
AT	*Primula carniolica*	E1	+	3	1	1	1	1	1	1	8	100	33
AT	*Valeriana saxatilis*	E1	2	2	1	1	+	+	1	1	8	100	32
AT	*Paederota lutea*	E1	1	1	+	+	.	.	+	.	5	63	17
AT	*Primula* x *venusta*	E1	+	.	.	.	.	.	.	.	1	13	3
	Caricion austroalpinae												
	Laserpitium peucedanoides	E1	+	1	+	.	.	.	.	+	4	50	10
	Asperula aristata	E1	.	+	.	+	.	.	.	.	2	25	6
	Caricion firmae												
	Carex firma	E1	+	.	.	.	.	.	.	.	1	13	3
	Gentiana nivalis	E1	.	r	.	.	.	.	.	.	1	13	1
	Caricion ferrugineae												
	Carex ferruginea	E1	.	.	+	.	.	+	+	+	4	50	8
ES	***Elyno-Seslerietea***												
	Sesleria caerulea subsp. *calcaria*	E1	3	2	4	3	2	3	3	3	8	100	64
	Carex mucronata	E1	+	1	+	+	2	+	1	.	7	88	26
	Phyteuma orbiculare	E1	.	.	.	.	.	+	+	1	3	38	6
	Aster bellidiastrum	E1	.	.	.	.	+	.	.	+	2	25	3
	Betonica alopecuros	E1	+	.	.	.	.	.	.	+	2	25	3
	Gentiana clusii	E1	+	.	.	.	.	.	.	.	1	13	3
	Thymus alpigenus	E1	+	.	.	.	.	.	.	.	1	13	3
	Hieracium villosum	E1	.	.	.	+	.	.	.	.	1	13	3

	Number of relevé (Številka popisa)		1	2	3	4	5	6	7	8	Pr.	Fr.	Ic.
AT	***Asplenietea trichomanis***												
	Phyteuma scheuchzeri subsp. *columnae*	E1	.	+	+	+	.	.	.	.	3	38	8
	Asplenium ruta-muraria	E1	.	.	r	+	.	.	.	.	2	25	4
	Primula auricula	E1	+	.	.	.	.	.	.	.	1	13	3
	Saxifraga crustata	E1	+	.	.	.	.	.	.	.	1	13	3
	Potentilla caulescens	E1	.	.	.	+	.	.	.	.	1	13	3
TR	***Thlaspietea rotundifolii***												
	Hieracium bifidum	E1	.	+	+	.	.	.	+	.	3	38	8
	Campanula cespitosa	E1	.	.	+	.	.	+	r	.	3	38	7
	Astrantia carniolica	E1	.	.	.	.	+	+	1	.	3	38	10
	Aquilegia bertolonii	E1	+	.	.	.	.	.	.	.	1	13	3
FB	***Festuco-Brometea***												
	Carex flacca	E1	.	.	.	.	+	+	+	.	3	38	8
	Lotus corniculatus	E1	+	+	.	.	.	.	.	.	2	25	6
	Buphthalmum salicifolium	E1	.	.	+	.	.	.	.	.	1	13	3
	Galium lucidum	E1	.	.	.	.	.	.	.	1	1	13	0
SC	***Scheuchzerio-Caricetea fuscae***												
	Pinguicula alpina	E1	.	+	r	.	.	+	1	.	4	50	11
	Tofieldia calyculata	E1	.	.	+	.	+	.	+	+	4	50	8
	Blysmus compressus	E1	.	.	.	.	+	.	.	.	1	13	3
MA	***Mulgedio-Aconitetea***												
	Salix glabra	E2a	.	.	.	+	.	+	+	.	3	38	8
	Salix glabra	E1	+	2	.	.	.	.	.	.	2	25	10
	Salix appendiculata	E2a	.	.	.	+	.	.	r	.	2	25	4
	Salix appendiculata	E1	+	2	.	.	.	.	.	.	2	25	10
	Viola biflora	E1	r	.	.	.	.	.	.	.	1	13	1
	Veratrum album	E1	.	.	.	.	.	.	+	.	1	13	3
EP	***Erico-Pinetea***												
	Erica carnea	E1	2	3	1	.	1	1	1	2	7	88	33
	Rhododendron hirsutum	E1	2	2	+	+	.	.	.	1	5	63	19
	Polygala chamaebuxus	E1	.	.	1	.	+	1	1	+	5	63	15
	Rhodothamnus chamaecistus	E1	3	.	2	1	.	.	.	.	3	38	21
	Rubus saxatilis	E1	+	1	.	.	.	.	.	.	2	25	7
	Calamagrostis varia	E1	.	.	.	.	.	+	.	+	2	25	3
	Gymnadenia odoratissima	E1	+	.	.	.	.	.	.	.	1	13	3
	Allium ericetorum	E1	+	.	.	.	.	.	.	.	1	13	3
	Cotoneaster integerrimus	E1	+	.	.	.	.	.	.	.	1	13	3
	Carex alba	E1	.	+	.	.	.	.	.	.	1	13	3
	Pinus mugo	E2a	.	.	.	+	.	.	.	.	1	13	3
	Aquilegia nigricans	E1	.	.	.	.	.	.	r	.	1	13	1
	Chamaecytisus hirsutus	E1	.	.	.	.	.	.	.	+	1	13	0
	Genista radiata	E1	.	.	.	.	.	.	.	+	1	13	0
VP	***Vaccinio-Piceetea***												
	Picea abies	E1	.	.	r	r	.	.	r	.	3	38	4
	Rosa pendulina	E1	+	.	.	.	.	.	.	.	1	13	3
	Clematis alpina	E1	.	+	.	.	.	.	.	.	1	13	3
	Homogyne sylvestris	E1	.	.	+	.	.	.	.	.	1	13	3
	Veronica urticifolia	E1	.	.	.	.	.	.	r	.	1	13	1
FS	***Fagetalia sylvaticae***												0
	Cyclamen purpurascens	E1	+	.	.	.	.	.	.	.	1	13	3

	Number of relevé (Številka popisa)		1	2	3	4	5	6	7	8	Pr.	Fr.	Ic.
	Euphorbia carniolica	E1	.	.	.	.	.	.	r	.	1	13	1
	Acer pseudoplatanus	E1	.	.	.	.	.	.	.	r	1	13	0
QP	***Quercetalia pubescentis***												
	Ostrya carpinifolia	E2a	.	.	.	.	.	r	r	.	2	25	3
	Ostrya carpinifolia	E1	.	.	+	.	+	+	.	+	4	50	8
	Mercurialis ovata	E1	.	.	.	.	.	.	.	+	1	13	0
QF	***Querco-Fagetea***												
	Carex umbrosa	E1	.	.	.	.	.	.	+	.	1	13	0
O	**Other species (Druge vrste)**												
	Molinia caerulea subsp. *arundinacea*	E1	.	.	.	.	.	+	1	+	3	38	7
	Salix eleagnos	E2a	.	.	.	.	.	r	.	.	1	13	1
M	**Mosses (Mahovi)**												
	Ctenidium molluscum	E0	1	.	1	1	+	+	+	+	7	88	21
	Neckera crispa	E0	+	+	2	1	.	+	+	+	7	88	22
	Tortella tortuosa	E0	.	.	+	+	.	+	.	.	3	38	8
	Campylium stellatum	E0	.	.	.	.	1	.	1	.	2	25	8
	Orthothecium rufescens	E0	.	.	.	.	1	+	.	.	2	25	7
	Hylocomium splendens	E0	2	.	.	.	.	.	.	.	1	13	7
	Rhytidiadelphus triquetrus	E0	1	.	.	.	.	.	.	.	1	13	4
	Dicranum scoparium	E0	+	.	.	.	.	.	.	.	1	13	3
	Fissidens dubius	E0	.	.	+	.	.	.	.	.	1	13	3
	Schistidium apocarpum	E0	.	.	.	+	.	.	.	.	1	13	3

Table 3: The variant *Caricetum ferrugineae* var. *Astrantia carniolica* in the southern Julian Alps and in the Trnovski gozd plateau.

Tabela 3: Varianta *Caricetum ferrugineae* var. *Astrantia carniolica* v južnih Julijskih Alpah in v Trnovskem gozdu.

	Number of relevé (Številka popisa)		1	2	3	4	5	6	7		
	Altitude in m (Nadmorska višina v m)		1460	1370	840	1260	1120	1150	1210		
	Aspect (Lega)		N	N	N	NE	N	NW	E		
	Slope in degrees (Nagib v stopinjah)		35	20	45	45	35	20	40		
	Parent material (Matična podlaga)		A	A	D	D	D	D	D		
	Soil (Tla)		Li	Li	Li	Li	Li	Li	Li		
	Stoniness in % (Kamnitost v %)		10	10	60	20	30	10	10		
	Cover in % (Zastiranje v %):										
	Shrub layer (Grmovna plas)	E2			10		20				
	Herb layer (Zeliščna plast)	E1	100	95	60	80	70	100	100		
	Moss layer (Mahovna plast)	E0				20					
	Relevé area (Velikost popisne ploskve)	m2	5	5	4	10	10	10	10		
	Number of species (Število vrst)		36	30	27	26	21	22	25		
	Date of taking relevé (Datum popisa)		10.8.2004	10.8.2004	5.7.2001	27.8.2004	27.8.2004	27.8.2004	27.8.2004		
	Locality (Nahajališče)		Planina Suha	Planina Suha	Gamsarica	Zeleni rob	Zeleni rob	Zeleni rob	Zeleni rob		
	Quadrant (Kvadrant)		9749/3	9749/3	0049/2	9949/3	9949/3	9949/3	9949/3		
	Character and differential species of the association									Pr.	Fr.
	Značilne in razlikovalne vrste asociacije										
CFe	*Carex ferruginea*	E1	4	4	1	4	2	2	1	7	100
ES	*Aster bellidiastrum*	E1	1	1	+	2	+	+	.	6	86
ES	*Soldanella alpina*	E1	1	+	.	.	.	.	.	2	29
	Differential species of the variant										
	Razlikovalne vrste variante										
TR	*Astrantia carniolica*	E1	2	3	1	1	2	2	1	7	100
EP	*Calamagrostis varia*	E1	+	2	2	2	3	2	1	7	100
	Local differential species										
	Geografske razlikovalne vrste										
TR	*Aquilegia bertolonii*	E1	.	1	+	.	.	.	.	2	29
AT	*Primula carniolica*	E1	.	.	+	.	.	.	.	1	14
TR	*Hladnikia pastinacifolia*	E1	.	.	.	r	.	.	.	1	14
AT	*Phyteuma scheuchzeri* subsp. *columnae*	E1	.	.	.	.	.	.	1	1	14
	Caricion austroalpinae										
	Laserpitium peucedanoides	E1	1	1	+	+	.	+	1	6	86
	Heracleum austriacum subsp. *siifolium*	E1	+	.	.	.	.	.	.	1	14
	Ranunculus hybridus	E1	.	+	.	.	.	.	.	1	14
	Caricion firmae										
	Selaginella selaginoides	E1	1	+	.	.	.	.	.	2	29
	Carex firma	E1	.	.	+	.	.	.	.	1	14

	Number of relevé (Številka popisa)		1	2	3	4	5	6	7	Pr.	Fr.
ES	***Elyno-Seslerietea***										
	Sesleria caerulea subsp. *calcaria*	E1	.	+	1	+	2	3	4	6	86
	Betonica alopecuros	E1	2	.	+	.	.	+	2	4	57
	Phyteuma orbiculare	E1	+	1	.	.	.	.	.	2	29
	Campanula scheuchzeri	E1	1	.	.	.	.	.	.	1	14
	Trollius europaeus	E1	1	.	.	.	.	.	.	1	14
	Thesium pyrenaicum	E1	+	.	.	.	.	.	.	1	14
	Polygonum viviparum	E1	+	.	.	.	.	.	.	1	14
	Pulsatilla alpina	E1	+	.	.	.	.	.	.	1	14
	Gentiana clusii	E1	.	.	+	.	.	.	.	1	14
	Juncus monanthos	E1	.	.	.	.	1	.	.	1	14
AT	***Asplenietea trichomanis***										
	Paederota lutea	E1	+	1	+	+	.	.	+	5	71
	Valeriana saxatilis	E1	1	+	+	.	.	+	.	4	57
	Potentilla caulescens	E1	.	.	r	.	.	.	+	2	29
	Asplenium viride	E1	.	.	.	r	.	.	.	1	14
TR	***Thlaspietea rotundifolii***										
	Adenostyles glabra	E1	1	1	1	+	2	.	+	6	86
	Campanula cespitosa	E1	.	.	r	r	.	.	1	3	43
	Biscutella laevigata	E1	+	+	.	.	.	.	.	2	29
	Gymnocarpium robertianum	E1	.	+	.	r	.	.	.	2	29
	Soldanella minima	E1	.	+	.	.	+	.	.	2	29
	Campanula cochleariifolia	E1	.	+	.	.	.	+	.	2	29
	Cystopteris montana	E1	.	.	.	r	.	.	.	1	14
	Festuca nitida	E1	.	.	.	.	+	.	.	1	14
	Hieracium bifidum	E1	.	.	.	.	.	.	+	1	14
FB	***Festuco-Brometea***										
	Buphthalmum salicifolium	E1	+	1	.	+	.	+	1	5	71
	Linum catharticum	E1	.	.	+	.	.	.	1	2	29
	Euphrasia stricta	E1	1	.	.	.	.	.	.	1	14
	Lotus corniculatus	E1	.	.	.	.	.	.	+	1	14
SC	***Scheuchzerio-Caricetea fuscae***										
	Pinguicula alpina	E1	+	+	+	+	+	+	.	6	86
	Parnassia palustris	E1	+	.	+	1	1	1	.	5	71
	Tofieldia calyculata	E1	+	+	+	.	.	1	.	4	57
MA	***Mulgedio-Aconitetea***										
	Viola biflora	E1	1	1	.	+	.	.	.	3	43
	Salix glabra		.	.	1	.	1	.	.	2	29
	Salix glabra	E1	.	.	.	.	+	+	+	3	43
	Salix appendiculata	E1	.	.	.	.	+	.	r	2	29
	Aconitum lycoctonum subsp. *ranunculifolium*	E1	+	.	.	.	.	.	.	1	14
	Crepis paludosa	E1	+	.	.	.	.	.	.	1	14
EP	***Erico-Pinetea***										
	Rhododendron hirsutum	E1	+	.	+	+	+	1	+	6	86
	Euphrasia cuspidata	E1	.	.	+	.	.	+	.	2	29
	Gymnadenia odoratissima	E1	r	.	.	.	.	+	.	2	29
	Rhodothamnus chamaecistus	E1	.	.	r	r	.	.	.	2	29
	Cirsium erisithales	E1	+	.	.	.	.	.	.	1	14
	Rubus saxatilis	E1	.	+	.	.	.	.	.	1	14

	Number of relevé (Številka popisa)		1	2	3	4	5	6	7	Pr.	Fr.
	Polygala chamaebuxus	E1	.	.	.	.	.	1	.	1	14
	Allium ericetorum	E1	.	.	.	.	.	.	+	1	14
	Carex ornithopoda	E1	.	.	.	.	.	.	r	1	14
VP	***Vaccinio-Piceetea***										
	Homogyne sylvestris	E1	1	1	.	+	.	1	.	4	57
	Gentiana asclepiadea	E1	1	+	.	.	.	.	.	2	29
	Polystichum lonchitis	E1	.	+	.	r	.	.	.	2	29
	Larix decidua	E1	+	.	.	.	.	.	.	1	14
	Picea abies	E1	.	+	.	.	.	.	.	1	14
	Aposeris foetida	E1	.	.	.	+	.	.	.	1	14
FS	***Fagetalia sylvaticae***										
	Acer pseudoplatanus	E1	.	.	r	r	+	.	r	4	57
	Fagus sylvatica	E1	.	.	r	+	+	+	.	4	57
	Cyclamen purpurascens	E1	.	.	.	+	+	.	+	3	43
	Mercurialis perennis	E1	+	+	.	.	.	.	.	2	29
	Helleborus niger	E1	.	+	.	.	+	.	.	2	29
	Laburnum alpinum	E1	.	.	.	.	+	.	+	2	29
	Knautia drymeia	E1	+	.	.	.	.	.	.	1	14
	Omphalodes verna	E1	.	.	.	.	.	.	r	1	14
QF	***Querco-Fagetea***										
	Ostrya carpinifolia		.	.	+	.	.	.	.	1	14
	Hepatica nobilis	E1	.	.	.	.	.	.	+	1	14
M	**Mosses (Mahovi)**										
	Tortella tortuosa	E0	+	+	.	.	+	+	.	4	57
	Orthothecium rufescens	E0	.	.	.	1	.	.	.	1	14
	Ctenidium molluscum	E0	.	.	.	.	+	.	.	1	14
	Campylium stellatum	E0	.	.	.	.	.	+	.	1	14

Table 4: The association *Caricetum mucronatae* s. lat. in the Julian Alps and in the Trnovski gozd plateau.
Tabela 4: Asociacija *Caricetum mucronatae* s. lat. v Julijskih Alpah in v Trnovskem gozdu.

	Number of relevé (Številka popisa)		1	2	3	4	5	6	7	8	9	10	11	12*	13*	14	15		
	Altitude in m (Nadmorska višina v m)		1115	1110	1120	1105	1220	1270	1240	1275	1270	1280	2080	1615	1960	1940	1720		
	Aspect (Lega)		NNE	E	NE	SW	SE	S	NE	S	NE	NE	S	SWW	SE	SW	E		
	Slope in degrees (Nagib v stopinjah)		60	45	70	20	45	40	70	15	45	60	60	90	70	10	40		
	Parent material (Matična podlaga)		D	D	D	D	D	D	D	D	D	D	DA	A	A	DA	A		
	Soil (Tla)		Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li	Li		
	Stoniness in % (Kamnitost v %)		50	50	70	60	30	20	50	30	60	80	40	70	70	30	30		
	Cover in % (Zastiranje v %):																		
	Herb layer (Zeliščna plast)	E1	70	60	40	70	70	80	50	70	40	60	60	30	30	70	70		
	Moss layer (Mahovna plast)	E0							5	10	10								
	Relevé area (Velikost popisne ploskve)	m2	10	5	5	5	4	10	4	4	4	2	5	4	10	5	10		
	Number of species (Število vrst)		21	21	20	27	24	20	14	20	21	23	23	19	29	16	32		
	Date of taking relevé (Datum popisa)		20.7.2004	20.7.2004	20.7.2004	20.7.2004	13.8.2003	27.8.2004	13.8.2003	27.8.2004	20.8.2003	20.8.2003	20.9.2004	18.7.2003	5.8.2003	27.8.2003	1.8.2005		
	Locality (Nahajališče)		Hudournik	Hudournik	Hudournik	Hudournik	Sončni rob	Zeleni rob	Sončni rob	Zeleni rob	Poldanovec	Poldanovec	Rob nad Zagačami	Veliki vrh - Polovnik	Lemež	Zapotoški vrh	Krbulnik-Plazki Kuk		
	Quadrant (Kvadrant)		9949/1	9949/1	9949/1	9949/1	0049/1	9949/3	0049/1	9949/3	9949/3	9949/3	9548/3	9747/2	9748/1	9648/1	9648/3		
	Differential species of the ass. *Caricetum mucronatae*																	Pr.	Fr.
	Razlikovalnice asociacije *Caricetum mucronatae*																		
AT	*Valeriana saxatilis*	E1	1	1	1	1	.	r	.	.	1	+	+	+	.	+	1	11	73
AT	*Kernera saxatilis*	E1	.	.	.	+	.	.	r	r	.	.	.	.	.	.	.	3	20
TR	*Campanula cochleariifolia*	E1	.	.	.	.	.	.	.	.	.	.	+	+	+	.	.	3	20
	Differential species of the geographical variant																		
	Razlikovalne vrste geografske variante																		
AT	*Primula carniolica*	E1	+	1	+	+	.	.	.	.	.	+	.	.	.	.	.	5	33
AT	*Phyteuma scheuchzeri* subsp. *columnae*	E1	.	+	.	+	+	1	+	.	.	.	.	.	.	.	.	5	33
TR	*Hladnikia pastinacifolia*	E1	.	.	.	.	.	+	.	1	1	3	.	.	.	.	.	4	27
SJ	*Edraianthus graminifolius*	E1	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	2	13
	Caricion firmae																		
	Helianthemum alpestre	E1	.	.	.	.	.	.	.	.	1	1	1	+	+	3	1	7	47
	Carex firma	E1	.	.	.	.	.	.	.	r	1	+	+	+	.	1	.	6	40
	Dryas octopetala	E1	.	.	.	.	.	.	.	.	2	1	.	.	+	.	.	3	20
	Oxytropis jacquinii	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	1	7
	Gentiana favratii	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1	7
	Arctostaphylos alpina	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1	7
	Petrocallis pyrenaica	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1	7
	Gentiana nivalis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	7

	Number of relevé (Številka popisa)		1	2	3	4	5	6	7	8	9	10	11	12*	13*	14	15	Pr.	Fr.
	Salix alpina	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	7
	Caricion austroalpinae																		
	Asperula aristata	E1	1	+	1	1	+	1	.	+	.	.	.	.	+	+	2	10	67
	Laserpitium peucedanoides	E1	+	1	.	.	.	+	.	.	.	.	+	.	.	.	.	4	27
	Ranunculus hybridus	E1	.	.	.	.	.	.	.	.	.	.	1	+	+	+	.	4	27
	Koeleria eriostachya	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	1	7
ES	***Elyno-Seslerietea***																		
	Carex mucronata	E1	2	3	2	3	3	3	2	3	2	1	3	2	3	4	3	15	100
	Sesleria caerulea subsp. *calcaria*	E1	2	2	1	2	3	4	2	3	2	3	1	1	+	+	1	15	100
	Hieracium villosum	E1	+	+	+	+	+	.	.	+	.	.	.	.	+	.	+	8	53
	Anthyllis vulneraria subsp. *alpestris*	E1	1	.	+	1	+	.	.	.	.	.	+	.	+	.	1	7	47
	Gentiana clusii	E1	.	.	.	.	+	.	+	1	.	+	+	.	+	+	.	7	47
	Achillea clavenae	E1	.	.	.	.	.	.	.	.	1	.	.	+	+	.	1	4	27
	Thymus alpigenus	E1	.	.	.	.	+	+	+	1	.	.	.	.	.	.	.	4	27
	Leontopodium alpinum	E1	.	.	.	.	.	.	.	.	+	r	.	.	1	+	.	4	27
	Aster bellidiastrum	E1	.	.	.	.	.	.	.	.	.	.	1	+	.	.	1	3	20
	Betonica alopecuros	E1	.	.	.	.	+	1	.	.	.	.	.	.	.	.	.	2	13
	Helianthemum grandiflorum	E1	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	2	13
	Euphrasia salisburgensis	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1	2	13
	Pedicularis rostrato-capitata	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1	2	13
	Polygonum viviparum	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1	2	13
	Polygala alpestris	E1	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	1	7
	Carduus crassifolius	E1	.	.	.	.	.	.	.	.	.	r	.	.	.	.	.	1	7
	Bartsia alpina	E1	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	1	7
	Carex sempervirens	E1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	1	7
	Rhinanthus glacialis	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	1	7
	Sesleria sphaerocephala	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1	7
	Trisetum alpestre ?	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1	7
	Erigeron glabratus	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	7
	Alchemilla velebitica	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	7
AT	***Asplenietea trichomanis***																		
	Primula auricula	E1	.	.	.	.	+	r	1	+	.	r	.	1	1	.	+	8	53
	Saxifraga crustata	E1	.	.	.	.	.	.	1	.	+	.	1	1	+	.	1	6	40
	Paederota lutea	E1	+	.	.	.	.	r	.	.	.	.	.	.	+	.	.	3	20
	Saxifraga squarrosa	E1	.	.	.	.	.	.	.	.	+	r	+	+	+	.	.	5	33
	Dianthus sylvestris	E1	.	.	.	.	.	.	.	.	.	.	.	+	+	.	1	3	20
	Festuca stenantha	E1	.	.	.	.	.	.	.	.	.	.	.	+	+	.	1	3	20
	Potentilla caulescens	E1	.	.	.	.	+	.	.	+	.	.	.	.	.	.	.	2	13
	Bupleurum petraeum	E1	.	.	.	.	.	.	.	.	1	r	.	.	.	.	.	2	13
	Rhamnus pumilus	E1	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	7
	Asplenium ruta-muraria	E1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	1	7
	Daphne alpina	E1	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	1	7
	Sedum album	E1	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	1	7
	Silene hayekiana	E1	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	1	7
	Potentilla clusiana	E1	.	.	.	.	.	.	.	.	r	.	.	.	.	.	.	1	7
	Potentilla nitida	E1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	1	7
	Campanula zoysii	E!	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	1	7
	Saxifraga paniculata	E!	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	1	7
TR	***Thlaspietea rotundifolii***																		
	Campanula cespitosa	E1	+	1	+	1	+	+	.	+	+	.	.	.	.	.	.	8	53
	Hieracium bifidum	E1	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	1	7

	Number of relevé (Številka popisa)		1	2	3	4	5	6	7	8	9	10	11	12*	13*	14	15	Pr.	Fr.
	Aquilegia bertolonii	E1	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	1	7
	Biscutella laevigata	E1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	1	7
	Leontodon hispidus subsp. *hyoseroides*	E1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	1	7
	Cerastium subtriflorum	E1	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	1	7
	Trifolium pallescens	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	7
FB	***Festuco-Brometea***																		
	Globularia cordifolia	E1	1	1	1	1	+	1	.	2	+	+	+	+	1	+	.	13	87
	Teucrium montanum	E1	.	1	.	+	+	1	.	1	.	.	.	.	.	.	.	5	33
	Lotus corniculatus s. lat.	E1	.	.	+	.	+	.	.	r	.	+	.	.	.	.	.	4	27
	Linum catharticum	E1	.	.	.	.	.	.	.	+	.	+	.	.	.	.	+	3	20
	Helianthemum ovatum	E1	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	7
	Polygonatum odoratum	E1	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	1	7
	Viola hirta	E1	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	1	7
	Buphthalmum salicifolium	E1	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	1	7
	Coronilla vaginalis	E1	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	1	7
	Bromopsis erecta	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	7
SC	***Scheuchzerio-Caricetea fuscae***																		
	Tofieldia calyculata	E1	.	+	.	+	.	.	.	.	.	.	.	.	.	.	.	2	13
	Parnassia palustris	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	7
	Gentiana utriculosa	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	7
MA	***Mulgedio-Aconitetea***																		
	Salix glabra	E1	1	+	+	.	+	+	.	.	.	.	.	.	.	.	.	5	33
	Salix waldsteiniana	E1	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	2	13
	Salix appendiculata	E1	.	.	.	+	.	.	.	.	.	.	.	.	.	.	+	2	13
	Viola biflora	E1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	1	7
EP	***Erico-Pinetea***																		
	Rhodothamnus chamaecistus	E1	1	1	1	.	1	.	+	+	+	+	3	+	+	.	+	12	80
	Allium ericetorum	E1	+	+	.	+	+	1	+	+	+	.	.	.	.	.	.	8	53
	Erica carnea	E1	+	.	+	.	1	.	.	.	.	.	+	.	+	.	.	5	33
	Euphrasia cuspidata	E1	1	1	1	.	.	.	.	.	+	1	.	.	.	.	.	5	33
	Rhododendron hirsutum	E1	1	+	.	+	.	.	.	.	.	.	.	.	+	.	.	4	27
	Arctostaphylos uva-ursi	E1	.	.	.	.	+	.	2	3	.	r	.	.	.	.	.	4	27
	Calamagrostis varia	E1	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	2	13
	Gymnadenia odoratissima	E1	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	7
	Carex ornithopoda	E1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	1	7
	Epipactis atrorubens	E1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	1	7
	Juniperus alpina	E1	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	1	7
	Rubus saxatilis	E1	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	1	7
	Cotoneaster tomentosus	E1	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	1	7
	Polygala chamaebuxus	E1	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	1	7
FS	***Fagetalia sylvaticae***																		
	Cyclamen purpurascens	E1	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	1	7
	Fagus sylvatica	E1	.	.	.	.	.	r	.	.	.	.	.	.	.	.	.	1	7
VP	***Vaccinio-Piceetea***																		
	Larix decidua	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	7
O	**Other species (Druge vrste)**																		
	Juniperus communis	E1	r	.	.	+	.	.	.	.	.	.	.	.	.	.	.	2	13
	Hieracium sp.	E1	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	1	7
M	**Mosses (Mahovi)**																		
	Tortella tortuosa	E0	.	+	1	1	.	.	1	+	.	+	.	.	.	.	+	7	47
	Schistidium apocarpum	E0	.	.	+	.	.	.	+	.	.	.	.	.	.	.	+	3	20

Number of relevé (Številka popisa)		1	2	3	4	5	6	7	8	9	10	11	12*	13*	14	15	Pr.	Fr.
Tortella sp.	E0	.	.	+	.	.	.	.	.	.	.	.	.	.	+	.	2	13
Fissidens dubius	E0	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	1	7
Grimmia pulvinata	E0	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	1	7
Homalothecium sp.	E0	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	1	7
Dicranum sp.	E0	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	1	7
Ctenidium molluscum	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	7

*leg & det. I. Dakskobler & B. Surina

Table 5: Synoptic table of the syntaxa from the order *Seslerietalia caeruleae* in the Trnovski gozd plateau.
Tabela 5: Sintezna tabela sintaksonov iz rada *Seslerietalia caeruleae* v Trnovskem gozdu.

Successive number (Zaporedna številka)		1	2	3	4	5
Sign of syntaxa (Oznaka sintaksonov)		PcCfir	PcSc	PcCm	PnigSc	AcCfer
Number of relevés (Število popisov)		22	4	10	3	5
Averaga number of species per relevé (Povprečno število vrst na popis)		22	24	21	43	24
Standard deviation (Standardni odklon)		5.6	5.7	3.4	1	2.6
Coefficient of variation (Koeficient variacije)		25	23	16	2	11
Caricion firmae						
Carex firma	E1	100	25	30	100	20
Dryas octopetala	E1	5	0	20	67	0
Saxifraga caesia	E1	5	0	0	100	0
Gentiana nivalis	E1	0	25	0	0	0
Helianthemum alpestre	E1	0	0	20	0	0
Caricion austroalpinae						
Laserpitium peucedanoides	E1	55	75	30	100	80
Asperula aristata	E1	14	50	70	33	0
Ranunculus hybridus	E1	5	0	0	33	0
Caricion ferrugineae						
Carex ferruginea	E1	14	25	0	33	100
Seslerion juncifoliae						
Edraianthus graminifolius	E1	5	0	20	0	0
Elyno-Seslerietea						
Sesleria caerulea subsp. *calcaria*	E1	100	100	100	100	100
Aster bellidiastrum	E1	82	0	0	100	80
Gentiana clusii	E1	59	25	40	0	20
Carex mucronata	E1	50	100	100	0	0
Hieracium villosum	E1	18	25	60	33	0
Betonica alopecuros	E1	9	25	20	33	60
Senecio abrotanifolius	E1	9	0	0	33	0
Thymus alpigenus	E1	5	25	40	0	0
Juncus monanthos	E1	5	0	0	33	20
Leontopodium alpinum	E1	5	0	20	0	0
Anthyllis vulneraria subsp. *alpestris*	E1	5	0	40	0	0

Successive number (Zaporedna številka)		1	2	3	4	5
Carduus crassifolius	E1	0	0	10	0	0
Achillea clavenae	E1	0	0	10	0	0
Polygala alpestris	E1	0	0	10	0	0
Campanula scheuchzeri	E1	0	0	0	33	0
Silene alpestris	E1	0	0	0	33	0
Asplenietea trichomanis						
Valeriana saxatilis	E1	100	100	70	100	40
Primula carniolica	E1	91	100	50	67	20
Paederota lutea	E1	73	100	20	67	60
Campanula cochleariifolia	E1	32	0	0	33	20
Potentilla caulescens	E1	27	25	20	0	40
Saxifraga squarrosa	E1	18	0	20	33	0
Potentilla clusiana	E1	18	0	10	0	0
Phyteuma scheuchzeri subsp. *columnae*	E1	14	75	50	0	20
Primula auricula	E1	14	25	50	0	0
Saxifraga crustata	E1	14	25	20	33	0
Asplenium viride	E1	14	0	0	33	20
Asplenium ruta-muraria	E1	9	50	10	0	0
Bupleurum petraeum	E1	9	0	20	0	0
Carex brachystachys	E1	9	0	0	0	0
Kernera saxatilis	E1	5	0	30	0	0
Rhamnus pumilus	E1	5	0	10	0	0
Campanula justiniana	E1	5	0	0	0	0
Primula x *venusta*	E1	0	25	0	0	0
Daphne alpina	E1	0	0	10	0	0
Sedum album	E1	0	0	10	0	0
Silene hayekiana	E1	0	0	10	0	0
Thlaspietea rotundifolii						
Astrantia carniolica	E1	73	0	0	67	100
Campanula cespitosa	E1	55	25	80	67	60
Aquilegia bertolonii	E1	50	25	10	67	20
Soldanella minima	E1	36	0	0	67	20
Hieracium bifidum	E1	23	50	10	33	20
Hladnikia pastinacifolia	E1	23	0	40	0	20
Adenostyles glabra	E1	14	0	0	67	80
Hieracium porrifolium	E1	14	0	0	33	0
Festuca nitida	E1	5	0	0	0	20
Gymnocarpium robertianum	E1	0	0	0	67	20
Cystopteris montana	E1	0	0	0	0	20
Festuco-Brometea						
Linum catharticum	E1	36	0	20	33	40
Globularia cordifolia	E1	9	0	90	0	0
Lotus corniculatus s. lat.	E1	5	50	40	0	20
Buphthalmum salicifolium	E1	5	25	10	33	60
Teucrium montanum	E1	0	0	50	0	0
Viola hirta	E1	0	0	10	0	0
Coronilla vaginalis	E1	0	0	10	0	0
Helianthemum ovatum	E1	0	0	10	0	0
Polygonatum odoratum	E1	0	0	10	0	0

Successive number (Zaporedna številka)		1	2	3	4	5
Scheuchzerio-Caricetea fuscae						
Tofieldia calyculata	E1	59	25	20	100	40
Pinguicula alpina	E1	55	50	0	100	80
Parnassia palustris	E1	36	0	0	100	80
Mulgedio-Aconitetea						
Salix glabra	E2a	0	25	0	67	40
Salix glabra	E1	55	50	50	33	60
Viola biflora	E1	23	25	0	33	20
Salix appendiculata	E2a	0	25	0	100	0
Salix appendiculata	E1	9	50	10	0	40
Salix waldsteiniana	E1	5	0	20	0	0
Erico-Pinetea						
Rhodothamnus chamaecistus	E1	91	75	80	100	40
Rhododendron hirsutum	E1	73	100	30	100	100
Allium ericetorum	E1	27	25	80	33	20
Erica carnea	E1	27	75	30	67	0
Polygala chamaebuxus	E1	27	25	10	33	20
Euphrasia cuspidata	E1	23	0	50	67	40
Calamagrostis varia	E1	18	0	20	67	100
Arctostaphylos uva-ursi	E1	9	0	40	0	0
Gymnadenia odoratissima	E1	9	25	10	67	20
Pinus nigra	E2a	0	0	0	100	0
Pinus nigra	E1	9	0	0	100	0
Cotoneaster tomentosus	E1	9	0	10	0	0
Pinus mugo	E2a	0	25	0	33	0
Pinus mugo	E1	9	0	0	0	0
Carex ornithopoda	E1	0	0	10	33	20
Rubus saxatilis	E1	0	50	10	33	0
Carex alba	E1	0	25	0	0	0
Cotoneaster integerrimus	E1	0	25	0	0	0
Amelanchier ovalis	E2a	0	0	0	67	0
Epipactis atrorubens	E1	0	0	10	0	0
Cirsium erisithales	E1	0	0	0	33	0
Juniperus alpina	E1	0	0	10	0	0
Pyrola rotundifolia	E1	0	0	0	33	0
Vaccinio-Piceetea						
Picea abies	E2a	0	0	0	67	0
Picea abies	E1	14	50	0	33	0
Homogyne sylvestris	E1	5	25	0	67	40
Clematis alpina	E1	5	25	0	33	0
Rosa pendulina	E1	0	25	0	0	0
Hieracium murorum	E1	0	0	0	67	0
Gentiana asclepiadea	E1	0	0	0	33	0
Aposeris foetida	E1	0	0	0	0	20
Polystichum lonchitis	E1	0	0	0	0	20
Fagetalia sylvaticae						
Acer pseudoplatanus	E2a	0	0	0	33	0
Acer pseudoplatanus	E1	14	0	0	100	80
Cyclamen purpurascens	E1	14	25	10	67	60

Successive number (Zaporedna številka)		1	2	3	4	5
Fagus sylvatica	E2a	0	0	0	33	0
Fagus sylvatica	E1	5	0	10	100	80
Laburnum alpinum	E1	9	0	0	33	40
Helleborus niger	E1	0	0	0	33	20
Lathyrus vernus	E1	0	0	0	33	0
Melica nutans	E1	0	0	0	33	0
Omphalodes verna	E1	0	0	0	0	20
Quercetalia pubescentis						
Ostrya carpinifolia	E1	5	25	0	33	0
Fraxinus ornus	E1	5	0	0	0	0
Ostrya carpinifolia	E2a	0	0	0	33	20
Fraxinus ornus	E2a	0	0	0	33	0
Sorbus aria	E1	0	0	0	33	0
Querco-Fagetea						
Corylus avellana	E1	0	0	0	33	0
Hepatica nobilis	E1	0	0	0	0	20
Other species (Druge vrste)						
Molinia caerulea subsp. *arundinacea*	E1	9	0	0	67	0
Juniperus communis	E1	0	0	20	0	0
Potentilla erecta	E1	0	0	0	33	0
Mosses and lichens (Mahovi in lišaji)						
Orthothecium rufescens	E0	55	0	0	33	20
Neckera crispa	E0	36	100	0	33	0
Tortella tortuosa	E0	32	50	50	100	40
Ctenidium molluscum	E0	32	75	0	0	20
Marchantia polymorpha	E0	32	0	0	0	0
Fissidens dubius	E0	18	25	10	67	0
Tortella sp.	E0	18	0	20	0	0
Solorina saccata	E0	9	0	0	0	0
Rhytidiadelphus triquetrus	E0	5	25	0	33	0
Dicranum sp.	E0	5	0	10	0	0
Schistidium apocarpum	E0	0	25	20	0	0
Hylocomium splendens	E0	0	25	0	0	0
Dicranum scoparium	E0	0	25	0	0	0
Grimmia pulvinata	E0	0	0	10	0	0
Homalothecium sp.	E0	0	0	10	0	0
Campylium stellatum	E0	0	0	0	0	20

1: *Primulo carniolicae-Caricetum firmae*
2: *Primulo carniolicae-Seslerietum calcariae*
3: *Caricetum mucronatae* var. geogr. *Primula carniolica*
4: *Pino nigrae-Seslerietum calcariae* nom. prov.
5: *Caricetum ferrugineae* var. *Astrantia carniolica*