

PHYTOSOCIOLOGICAL DESCRIPTION OF DWARF SHRUB COMMUNITIES WITH DOMINANT *RHODODENDRON HIRSUTUM* AND *JUNIPERUS ALPINA* IN THE JULIAN ALPS AND TRNOVSKI GOZD PLATAEU

FITOCENOLOŠKI OPIS GRMIŠČ S PREVLAJUJOČIMA VRSTAMA *RHODODENDRON HIRSUTUM* IN *JUNIPERUS ALPINA* V JULIJSKIH ALPAH IN TRNOVSKEM GOZDU

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<http://dx.doi.org/10.3986/fbg0092>

ABSTRACT

Phytosociological description of dwarf shrub communities with dominant *Rhododendron hirsutum* and *Juniperus alpina* in the Julian Alps and Trnovski Gozd Plateau

We surveyed shrub communities with dominant *Rhododendron hirsutum* and *Juniperus alpina* in the subalpine and lower alpine belt of the Julian Alps. Based on comparison with similar communities in the Southeastern Alps and northwestern Dinaric Alps we classified them into the association *Rhododendro chamaecisti-Juniperetum alpinae* and a new subassociation *laserpitietosum peucedanoidis*. Similar stands in the altimontane-subalpine belt of the Trnovski Gozd Plateau (Kozja Stena under Mt. Javorški Vrh) and the Snežnik Mountains (Ždrcle) are classified into the association *Rhododendro hirsuti-Juniperetum alpinae*. On some sites, stands of the association *Rhododendro chamaecisti-Juniperetum alpinae* are a successional stage on former or still active alpine pastures, but they also have a strong protective function and play an important role as biotopes.

Key words: subalpine vegetation, *Rhododendro hirsuti-Ericetalia carnea*, Triglav National Park, Ždrcle Forest Reserve, Slovenia

IZVLEČEK

Fitocenološki opis grmišč s prevladujočima vrstama *Rhododendron hirsutum* in *Juniperus alpina* v Julijskih Alpah in Trnovskem gozdu

V podvisokogorskem in spodnjem visokogorskem pasu Julijskih Alp smo popisali grmišča s prevladujočima vrstama *Rhododendron hirsutum* in *Juniperus alpina* in jih na podlagi primerjave s podobnimi združbami v Jugovzhodnih Alpah in v severozahodnem delu Dinarskega gorstva uvrstili v asociacijo *Rhododendro chamaecisti-Juniperetum alpinae* in v novo subasociacijo *laserpitietosum peucedanoidis*. Podobne sestoje v zgornjegorsko-podvisokogorskem pasu Trnovskega gozda (Kozja stena južno pod Javorškim vrhom) in Snežniškega pogorja (Ždrcle) uvrščamo v asociacijo *Rhododendro hirsuti-Juniperetum alpinae*. Sestoji asociacije *Rhododendro chamaecisti-Juniperetum alpinae* so ponekod sukcesijski stadij na nekdanjih ali še dejavnih podvisokogorskih pašnikih, a imajo tudi pomembno varovalno in biotopsko vlogo.

Ključne besede: subalpinska vegetacija, *Rhododendro hirsuti-Ericetalia carnea*, Triglavski narodni park, Trnovski gozd, gozdni rezervat Ždrcle, Slovenija

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1 INTRODUCTION

Within the class *Elyno-Seslerietea* (*Seslerietea albicantis*) GRABHERR, GREIMLER & MUCINA (1993) described a new order *Rhododendro hirsuti-Ericetalia carnea* and a new alliance *Ericion carneae*, into which they classified dwarf shrub communities, including communities of *Erica carnea* and *Rhododendron hirsutum* on calcareous (limestone and dolomite) sites in the Central and South-eastern European mountains. In the subalpine and alpine belt of the calcareous Alps these dwarf shrub communities are both geographically and successionaly related to the subalpine-alpine grasslands from the class *Elyno-Seslerietea*. They usually overgrow very rocky or stony sites that frequently feature *Rhodothamnus chamaecistus*, *Juniperus alpina* (*Juniperus communis* subsp. *alpina*, *J. sibirica*, *J. nana*) and *Sorbus chamaemespilus* alongside hairy alpenrose and spring heath. POLDINI, ORIOLO and FRANCESCATO (2004) classified such dwarf shrub community in the Italian Southeastern Alps into the association *Rhodothamno chamaecisti-Juniperetum alpini*. E. PIGNATTI & S. PIGNATTI (2014, 2016) do not report a community of *Juniperus alpina* and *Rhododen-*

dron hirsutum for the Dolomites, but they published its relevé in the table of acidophytic alpine association *Junipero-Arctostaphyletum*. HORVAT (1962) was the first to identify and map a hairy rhododendron (alpenrose) and dwarf juniper community (*Rhododendro hirsuti-Juniperetum alpinae*) in the Dinaric Alps, which was presented in a synthetic table by HORVAT, GLAVAČ & ELLENBERG (1974). SURINA (2013) conducted a detailed survey with an analytic table comprising 22 relevés from the Liburnian karst and described a new subassociation *seslerietosum tenuifoliae*. Shrub communities of dwarf juniper were not discussed in the survey of montane-subalpine dwarf willow communities in the Julian Alps and Trnovski Gozd Plateau (DAKSKOBLER & SURINA 2017b). We made the first relevés of a dwarf juniper and hairy alpenrose community in 2017 and subsequently identified other areas where it is relatively frequent. Once we collected sufficient relevés we arranged them into a phytosociological table and classified them into a syntaxonomic system based on comparisons with similar communities in NE Italy, SW Slovenia and NW Croatia.

2 METHODS

Subalpine-alpine shrub communities with dominant *Juniperus alpina* and *Rhododendron hirsutum* in the Julian Alps and on the Trnovski Gozd Plateau were studied applying the Braun-Blanquet method (BRAUN-BLANQUET 1964). A total of 49 relevés (four of them are from the Ždroclje Forest Reserve in the Snežnik Mts.) were entered into the FloVegSi database (T. SELIŠKAR, VREŠ & A. SELIŠKAR 2003). The relevés were arranged into a table based on hierarchical classification. We transformed the combined cover-abundance values into ordinal scale (1–9) according to van der MAAREL (1979). Numerical comparisons were performed with the SYN-TAX 2000 program package (PODANI 2001). The relevés were compared by means of “(unweighted) average linkage method” – UPGMA, using Wishart’s similarity ratio.

The nomenclatural source for the names of vascular plants are the Mala flora Slovenije (MARTINČIČ et al. 2007), Flora alpina (AESCHIMANN et al. 2004a,b) and the FloVegSi database, and MARTINČIČ (2003, 2011) for mosses. SUPPAN et al. (2000) is the nomenclatural source for the names of lichenicolous fungi (lichens). For the names of syntaxa we follow GRABHERR, GREIMLER & MUCINA (1993), THEURILLAT (2004), ŠILC & ČARNI (2012), MUCINA et al. (2016) and DAKSKOB-

LER & SURINA (2017a,b). Instead of the name *Rhodothamnno chamaecisti-Juniperetum alpini* (POLDINI, ORIOLO & FRANCESCATO 2004), we used name *Rhodothamnno chamaecisti-Juniperetum alpinae*.

In the classification of species into phytosociological groups (groups of diagnostic species) we mainly refer to the Flora alpina (AESCHIMANN et al. 2004a,b). The geographic coordinates of relevés are determined according to the Slovenian geographic coordinate system D 48 (zone 5), based on Gauss-Krüger projection and the Bessel ellipsoid.

Most of the relevés discussed in this article were made in the Julian Alps and on the Trnovski Gozd Plateau (Dinaric Alps). The geological bedrock in the study area is mainly calcareous, limestone, dolomite limestone or dolomite (BUSER 2009). The studied communities occur on initial soils (lithosols) or rendzina with raw or moder humus (LOVRENČAK 1998, VIDIC et al. 2015). The climate is montane, humid, with mean annual precipitation of (2,000) 2,500 to 3,000 mm (ZUPANČIČ 1998) and mean annual air temperature of (-1) 0 to +2 °C (CEGNAR 1998). The studied communities often overgrow shady slopes and their stands are frequently covered with snow for several months.

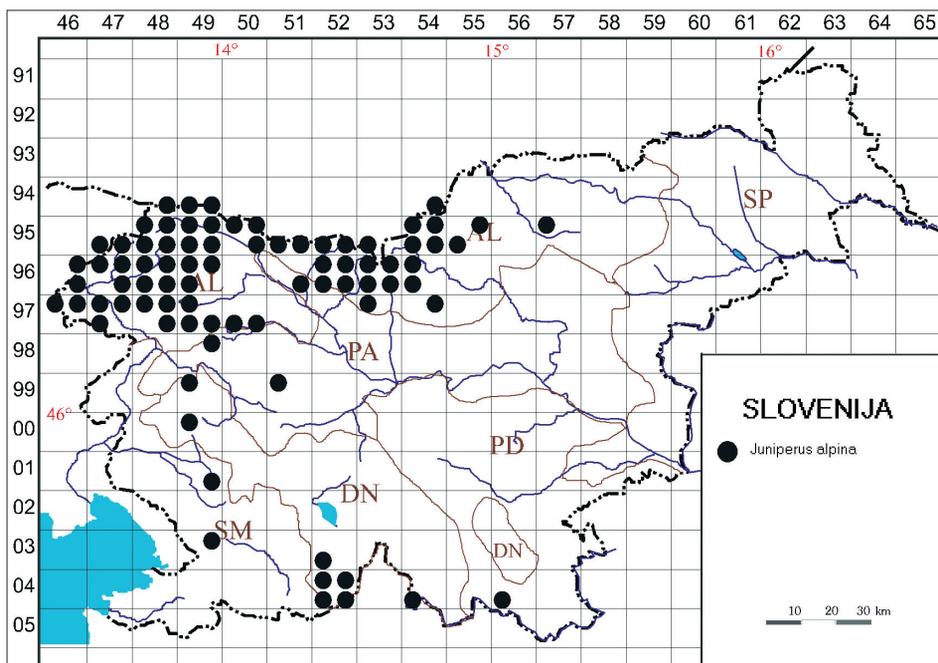


Figure 1: Distribution of *Juniperus alpina* in Slovenia. Sources: JOGAN et al. (2001) and the FloVegSi database.
Slika 1: Razširjenost vrste *Juniperus alpina* v Sloveniji. Vira: JOGAN et al. (2001) in podatkovna baza FloVegSi.

3 RESULTS AND DISCUSSION

3.1 Distribution of *Juniperus alpina* in Slovenia and its communities with *Rhododendron hirsutum*

In Slovenia, *Juniperus alpina* is distributed predominantly in the Alpine, pre-Alpine and Dinaric phytogeographical region. Certain sources (JOGAN et al. 2001) report it also for the sub-Mediterranean phytogeographical region. In the pre-Dinaric phytogeographical region it occurs above the Kolpa Valley – Figure 1.

In Slovenia, *Juniperus alpina* and *Rhododendron hirsutum* co-occur in several forest communities of the upper montane and subalpine belt, most frequently in stands of associations *Rhodothamno-Laricetum* and *Polysticho lonchitis-Fagetum*, more rarely also in stands of the associations *Homogyno sylvestris-Fagetum* and *Adenostylo glabrae-Piceetum*.

In scrub vegetation these two species most frequently co-occur in the communities described herein as well as in dwarf pine communities *Rhodothamno-Pinetum mugo* and *Hyperico grisebachii-Pinetum mugo*, more rarely also in other montane-subalpine communities of other shrub or tree species: *Polysticho lonchitis-Rhamnetum fallacis*, *Rhododendro hirsuti-Betuletum carpaticae*, *Rhododendro hirsuti-Salicetum*

appendiculatae and *Laserpitio peucedanoidis-Salicetum waldsteinianae*.

Dwarf juniper and hairy alpenrose co-occur also in some (sub)alpine acidic heaths and swards: *Empetro-Vaccinietum gaultherioidis*, *Rhododendretum ferruginei* s. lat., *Sieversio-Nardetum strictae*; in subalpine-alpine grasslands on calcareous bedrock: *Caricetum mucronatae* s. lat., *Caricetum ferrugineae* s. lat., *Ranunculo hybridi-Caricetum sempervirentis*, *Rhododendretum hirsuti*, *Dryado-Rhodothamnetum chamaecisti*, *Pulsatillo vernalis-Dryadetum octopetalae* and *Gentiano terglouensis-Caricetum firmae*; and in tall herb communities: *Eryngio alpinae-Caricetum ferrugineae* and *Peucedanetum ostruthii* s. lat. (source: FloVegSi database, see Figure 2).

3.2 Comparison of the researched communities of *Juniperus alpina* and *Rhododendron hirsutum* with similar communities in NE Italy and NW Croatia

We hier archically classified (Figure 4) our relevés of the dwarf juniper and hairy alpenrose community (Figure 3) into three tables. The dendrogram produced

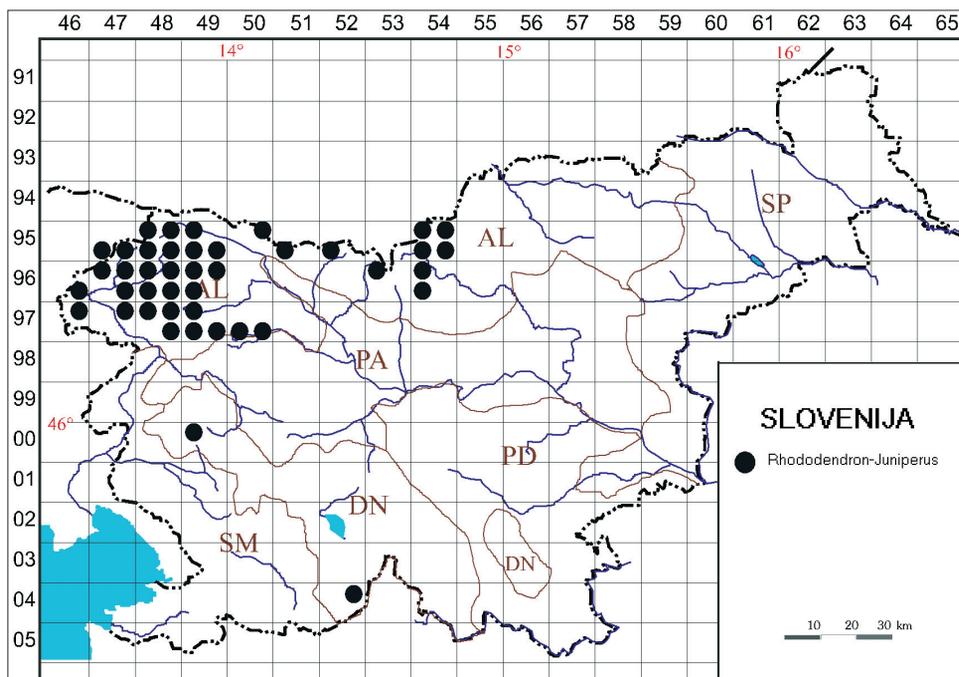


Figure 2: Localities of plant communities with co-occurring *Rhododendron hirsutum* and *Juniperus alpina* (the FloVegSi database)
 Slika 2: Nahajališča rastlinskih združb, v katerih skupaj raste vrsti *Rhododendron hirsutum* in *Juniperus alpina* (podatkovna baza FloVegSi)

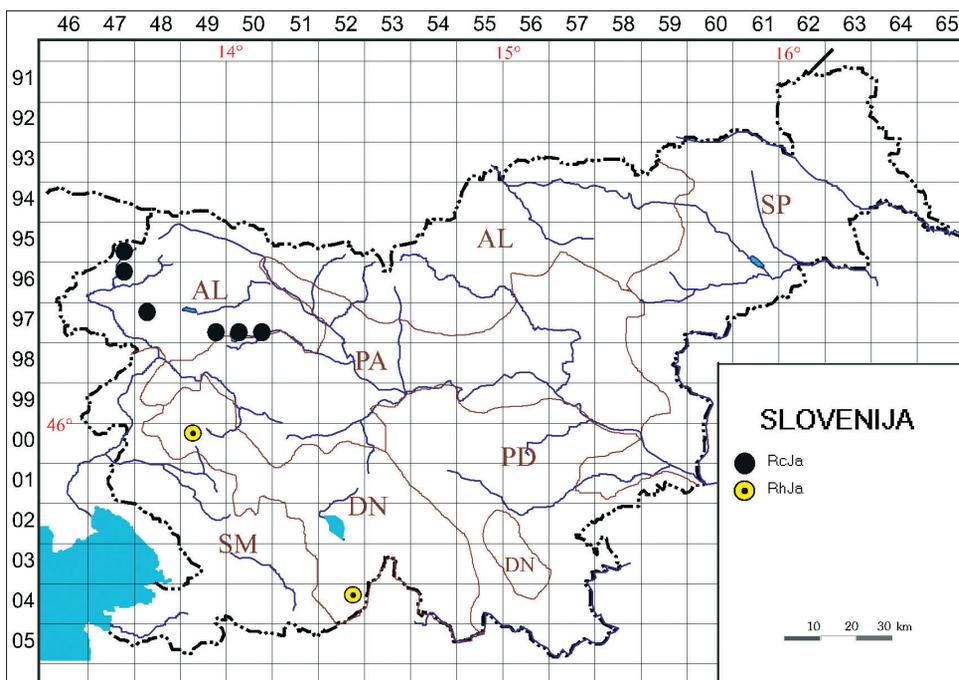


Figure 3: Localities of the researched stands of *Juniperus alpina* and *Rhododendron hirsutum* in the Julian Alps (RcJa) and Dinaric Alps (RhJa)
 Slika 3: Nahajališča raziskovanih sestojev pritlikavega brina (*Juniperus alpina*) in dlakavega sleča (*Rhododendron hirsutum*) v Julijskih Alpah (RcJa) in Dinarskem gorstvu (RhJa)

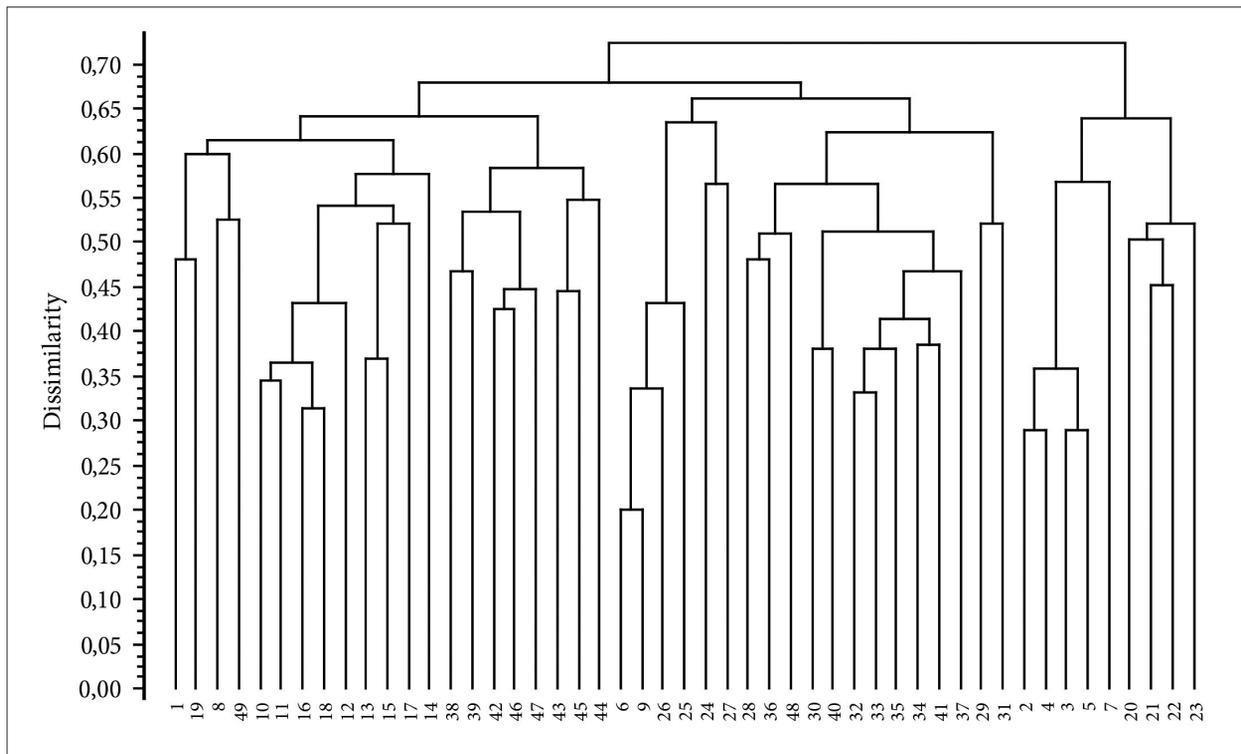


Figure 4: Dendrogram of 49 relevés of dwarf shrub communities with dominant *Juniperus alpina* and *Rhododendron hirsutum* in the Julian Alps, the Trnovski Gozd Plateau and the Snežnik Mts. (UPGMA, 1-similarity ratio).

Slika 4: Dendrogram 49 popisov grmišč z prevladujočima vrstama *Juniperus alpina* in *Rhododendron hirsutum* v Julijskih Alpah, Trnovskem gozdu in Snežniškem pogorju (UPGMA, 1-similarity ratio).

three large clusters and each was arranged into a separate table. We calculated the frequency of species, which served as the basis for the synoptic table. We added the species frequency of two similar, geographically the closest communities from the association *Rhodothamno chamaecisti-Juniperetum alpinae* (POLDINI, ORIOLO & FRANCESCATO 2004) from NE Italy and from the association *Rhododendro hirsuti-Juniperetum alpinae* from the Liburnian karst in SW Slovenia and NW Croatia (SURINA 2013). With hierarchical classification of these five columns we obtained the dendrogram in Figure 5. This figure demonstrates that two relevé clusters from the dendrogram in Figure 4 – left cluster and the central cluster – merged with the stands of the association *Rhodothamno-Juniperetum* from NE Italy, whereas the right cluster of relevés in Figure 4 merged with the stands of the association *Rhododendro-Juniperetum* from the Liburnian karst. The results of this comparison are shown in tables 1–4 and serve as the basis for our description of the determined communities.

3.3 Stands of the association *Rhodothamno-Juniperetum* in the Julian Alps (Tables 1 and 2)

The comparison (Figure 5) shows that a large part of our relevés (40) can be classified into the association *Rhodothamno-Juniperetum alpinae*. Its diagnostic species are *Juniperus alpina*, *Rhododendron hirsutum*, *Rhodothamnus chamaecistus*, *Sorbus chamaemespilus*, *Pinus mugo*, *Bartsia alpina* and *Hieracium bifidum*. In the original table of this association (POLDINI, ORIOLO & FRANCESCATO 2004: 63) the latter three have a frequency of less than 30%, the same as our relevés in Table 1. The dominant species in terms of frequency and coverage are *Juniperus alpina*, *Rhododendron hirsutum* and *Sorbus chamaemespilus*. *Rhodothamnus chamaecistus* is relatively rare (with a frequency of about 30%). This species is in Slovenia mainly distributed in the Alps, but some localities are also in the Dinaric Alps (Figure 6).

The elevation of the recorded stands of the association *Rhodothamno-Juniperetum alpinae* ranges between 1,575 m (Soriška Planina, at Možic) and 2,080 m

(under Mt. Mangart, Solnice). The relevés were made on levelled terrain, on gentle to steep slopes on all, although predominantly shady aspects. Other localities are Spodnji Lepoč and Prevela above the Bala Valley, Ruša under Mt. Kanin, and Mt. Altemaver in the Ratitovec mountain range. The geological bedrock is limestone, the soil is initial, lithosol or rendzina. Compared to the relevés in Table 2 they are characterized by a higher frequency and in place also medium coverage of dwarf whitebeam (*Sorbus chamaempilus*), and compared to the relevés from NE Italy they are characterized by a significantly higher constancy of *Laserpitium peucedanoides* and the presence of *Astrantia bavarica*, and are therefore classified into the new subassociation *Rhodothamno-Juniperetum alpinae laserpitietosum peucedanoidis*. Both differential species, *Laserpitium pe-*

ucedanoides and *Astrantia bavarica*, are also geographic differential species. The former has southeastern-Alpine north-Illyrian distribution and the latter eastern-Alpine distribution. The nomenclatural type of the new subassociation, *holotypus*, is relevé 8 in Table 1. We distinguish the type variant (relevés 1–4 in Table 1), var. *Campanula scheuchzeri* (the differential species are also *Vaccinium gaultherioides*, *Hieracium murorum*, *Lonicara caerulea* and *Aposeris foetida*) – relevés from the vicinity of Lepoč above the Bala Valley, and the variant with *Sesleria caerulea* – relevés from the peaks above Soriška Planina and the Ratitovec ridge (the differential species are also *Campanula witasekiana*, *Hieracium villosum* and *Valeriana saxatilis*). On Mt. Altemaver we distinguish within this variant a subvariant with *Arctostaphylos alpinus* on raw

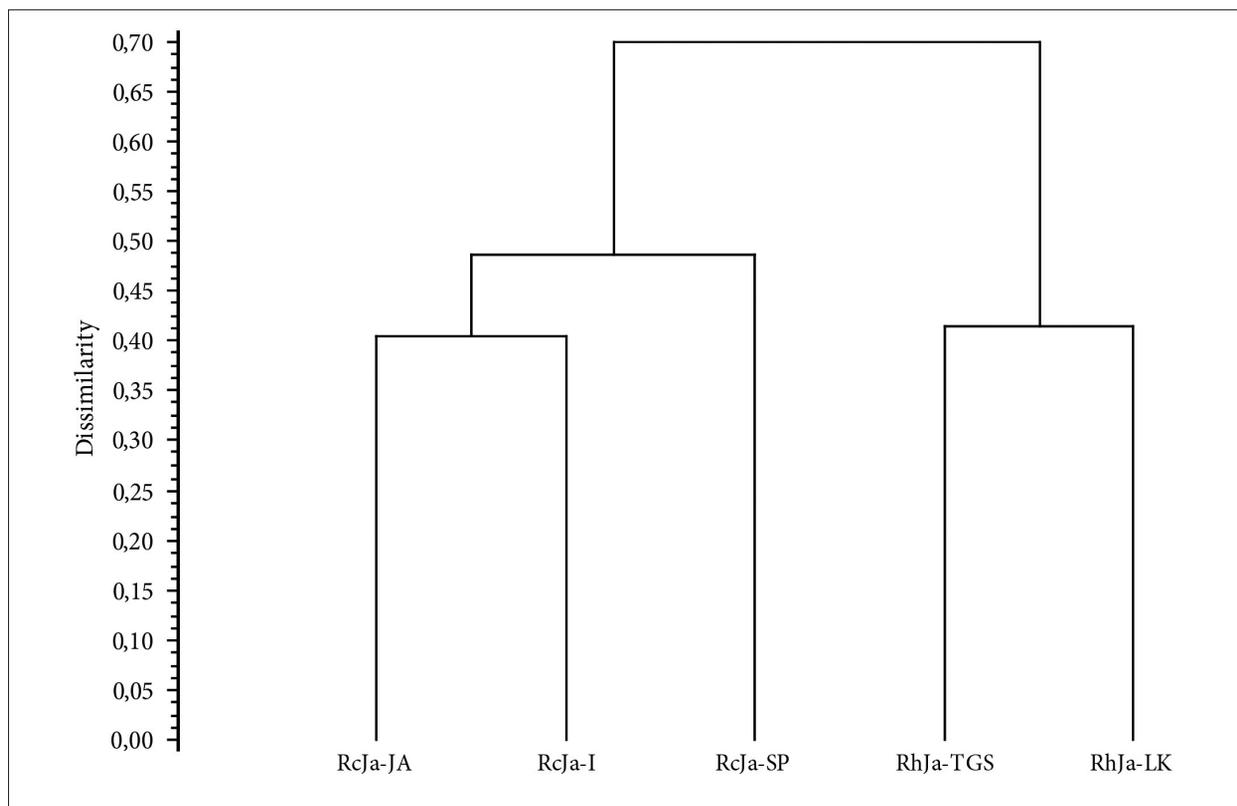


Figure 5: Dendrogram of dwarf shrub communities with dominant *Juniperus alpina* and *Rhododendron hirsutum* from the Southeastern Alps and northwestern part of the Dinaric Alps (UPGMA, 1-similarity ratio).

Slika 5: Dendrogram združb nizkih grmišč s prevladujočima vrstama *Juniperus alpina* in *Rhododendron hirsutum* iz Jugovzhodnih Alp in severozahodnega dela Dinarskega gorstva (UPGMA, 1-similarity ratio).

Legend (Legenda):

RcJa-I *Rhodothamno chamaecisti-Juniperetum alpinae*, NE Italy (POLDINI, ORIOLO & FRANCESCATO 2004)

RcJa-JA *Rhodothamno chamaecisti-Juniperetum alpinae*, this article, Table 1 (ta članek, Preglednica 1)

RcJa-SP *Rhodothamno chamaecisti-Juniperetum alpinae*, this article, Table 2 (ta članek, Preglednica 2)

RhJa-TGS *Rhododendro hirsuti-Juniperetum alpinae*, this article, Table 3 (ta članek, Preglednica 3)

RhJa-LK *Rhododendro hirsuti-Juniperetum alpinae*, Liburnian karst / Liburnijski kras (SURINA 2013)

humus, which in places comprises also the taxa *Empetrum hermaphroditum* and *Rhododendron × intermedium*.

Compared to the relevés in Table 1 the relevés in Table 2 show a distinctly lower frequency and medium coverage of *Sorbus chamaemespilus*, and the other character species of the association, *Rhodothamnus chamaecistus*, is also rare. They can still be classified into the subassociation *-laserpitetosum peucedanoidis*, although the constancy of *Laserpitium peucedanoides* is significantly lower than in the relevés in Table 1. The elevation of the relevés ranges from 1,550 m (Soriška Planina, most of the relevés in this table are from the mountains above this pasture) to 1,900 m (Na Jami under Mt. Mangart). Other localities are Mt. Črna Prst, mountain pasture Planina na Polju above Krn Lake and Mt. Altemaver in the range of Ratitovec. The relevés were made on gentle to very steep slopes, mainly on shady aspects on limestone bedrock (in places admixed with dolomite or marlstone). We distinguish two variants. Relevés 1–5 in Table 2 are classified into the variant with *Dryas octopetala* (its differential species include *Potentilla crantzii* and *Campanula scheuchzeri*), within which we further distin-

guish the subvariant with *Geranium argenteum* (its differential species include *Lonicera caerulea*, *Festuca stenantha*, *Saxifraga crustata*, *Trifolium noricum*, *Arcostaphylos alpinus*, *Hieracium villosum* and *Anemone narcissiflora*). The localities of this subvariant are on very steep shady slopes of the eastern ridge of Mt. Črna Prst with initial soil, in areas without direct human impact. Other relevés from this table, all but one are from the peaks above Soriška Planina, are classified into the variant with *Rubus idaeus*. Its differential species include *Festuca nigrescens*, *Salix appendiculata*, *Betonica alopecuros*, *Cirsium erisithales*, *Vaccinium myrtillus*, *Koeleria pyramidata*, *Centaurea haynaldii* subsp. *julica* and *Genista radiata*, the latter occasionally with higher medium coverage. The listed species indicate a successional stage in the overgrowing of partly still active mountain pastures at the upper forest line (which consists mainly of beech, *Polysticho lonchitis-Fagetum*). This is a marginal form of the association *Rhodothamno-Juniperetum*, and in terms of species composition (but not in terms of site specifics) it is slightly similar to the stands of the association *Rhododendro hirsuti-Juniperetum* from the Dinaric Alps.

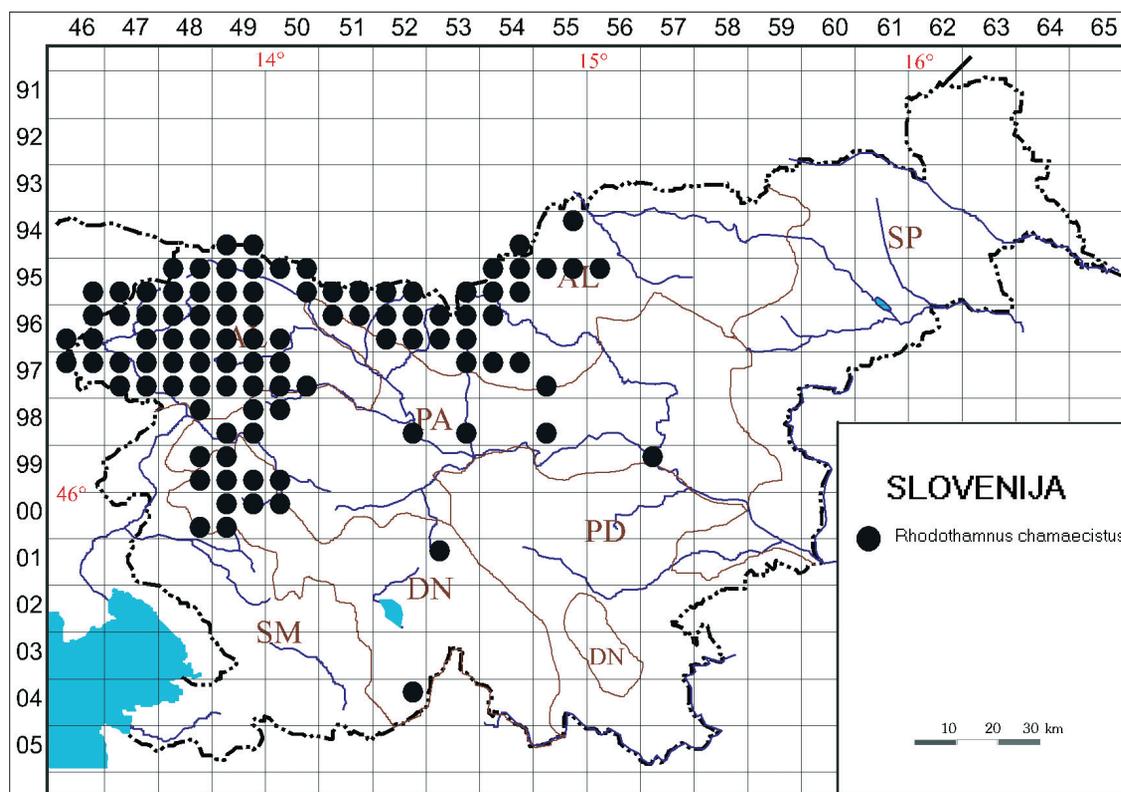


Figure 6: Distribution of *Rhodothamnus chamaecistus* in Slovenia. Sources: JOGAN et al. (2001) and the FloVegSi database. Slika 6: Razširjenost vrste *Rhodothamnus chamaecistus* v Sloveniji. Vira: JOGAN et al. (2001) in podatkovna baza FloVegSi.

3.4 Stands of the association *Rhododendro hirsuti-Juniperetum* in the Trnovski Gozd Plateau and in the Ždroclje Forest Reserve under Mt. Snežnik (Table 3)

Table 3 comprises nine relevés – one from Mt. Črna Prst, four from the Trnovski Gozd Plateau and four from the Ždroclje Forest Reserve under Mt. Snežnik – which grouped separately from other 40 relevés (hierarchical classification, Figure 4). The relevé from the shady eastern ridge of Mt. Črna Prst (1,800 m a.s.l.) probably merged with relevés from the Trnovski Gozd Plateau (relevés 2–5 in Table 3) because it occurs on initial soils (lithosol) and features a small number of species, among them several shared keystone species: *Rhododendron hirsutum*, *Juniperus alpina*, *Rosa pendulina*, *Lonicera caerulea* and *Rubus saxatilis*. However, its overall species composition suggests that it cannot be classified into the association *Rhododendro hirsuti-Juniperetum alpinae*; instead, we find that it still belongs to the association *Rhodothamno-Juniperetum alpinae* and subassociation *laserpitietosum peucedanoidis*. The association *Rhododendro hirsuti-Juniperetum alpinae* therefore comprises only the relevés from Kozja Stena under Mt. Javorški Vrh on the Trnovski Gozd Plateau (at elevations just above 1,300 m) and relevés from very rocky areas in the Ždroclje Forest Reserve under Mt. Snežnik (at elevations around 1,400 m). All character species of the association *Rhododendro-Juniperetum* – *Rhododendron hirsutum*, *Juniperus alpina*, *Rosa pendulina*, *Erica carnea*, *Salix appendiculata* and *Calamagrostis varia* – are well represented in these stands.

Kozja Stena is a shady rock face overgrown with shrub communities and enclosed on the upper edge by dwarf coppice stands of extrazonal subalpine beech forest (*Polysticho lonchitis-Fagetum*). In the vicinity we found, in addition to the dwarf juniper and hairy alpenrose community, also stands of associations *Rhododendro hirsuti-Salicetum appendiculata* and *Rhododendro hirsuti-Salicetum glabrae*. Four relevés from these rocks are classified into the variant with *Paederota lutea*. Its differential species are also *Sorbus chamaemespilus* and *Salix glabra*, suggesting a similarity with the stands of the association *Rhodothamno-Juniperetum* from the Southeastern Alps.

Dwarf juniper and hairy alpenrose stands in the Ždroclje Forest Reserve also occur predominantly in the subalpine beech forest zone (*Polysticho lonchitis-Fagetum*) or on rocky edges of deep karst depressions with fragments of subalpine spruce stands or fir-beech stands with spruce. They are classified into the variant

with *Polystichum lonchitis*. Its differential species include *Phyteuma orbiculare*, *Campanula cespitosa*, *Campanula justiniana*, *Carex ornithopoda*, *C. ferruginea*, *Dryopteris villarii*, *Hypericum richeri* subsp. *grisebachii*, *Leontodon hispidus* subsp. *hastilis* and *Asplenium fissum*. These stands are ecologically and floristically the most similar to other stands of this association from the Liburnian karst as described by SURINA (2013).

3.5 Floristic, stand, site and syndynamic similarities and differences between stands of associations *Rhodothamno-Juniperetum* and *Rhododendro hirsuti-Juniperetum*

Stands of the association *Rhododendro hirsuti-Juniperetum* mainly occur in the forest zone, at elevations ranging from 1,200 m to 1,450 m. Stands of the association *Rhodothamno-Juniperetum* mainly occur at or just above the upper forest line, at elevations ranging from 1,550 m to 2,000 (2,100) m. The geological bedrock is predominantly limestone. The soil is shallow moder rendzina, more often lithosol. Both communities have a shady rather than sunny aspect. Rockiness is more pronounced in the stands of the association *Rhododendro-Juniperetum*, but the herbaceous layer cover is higher in the stands of the association *Rhodothamno-Juniperetum*. The latter are more often subject to more rapid successional change, especially on former alpine pastures. Both associations are dominated by very long stages on extreme sites with severe growing conditions for forest or other forms of (sub)alpine vegetation. In the stands of the association *Rhododendro-Juniperetum* the character species of the association *Rhodothamno-Juniperetum* frequently occur only with *Juniperus alpina* and *Rhododendron hirsutum*, only exceptionally also with *Pinus mugo* and *Sorbus chamaemespilus*. Our comparisons demonstrate that the species that clearly differentiate the former (south-eastern-Alpine) association from the latter (northwestern-Dinaric) association include *Salix waldsteiniana*, *Festuca nigrescens*, *F. calva* and *Laserpitium peucedanoides*. Most character species of the association *Rhododendro-Juniperetum* occur also in the stands of the association *Rhodothamno-Juniperetum*. Good differential species of this Dinaric association against the Alpine association are *Homogyne sylvestris*, *Abies alba*, *Peucedanum austriacum*, *Allium ericetorum*, *Amelanchier ovalis*, *Sesleria juncifolia*, *Carex brachystachys*, *Laserpitium siler*, *Campanula justiniana* and *Hypericum richeri* subsp. *grisebachii*.

3.6 Classification of the researched communities into the syntaxonomical system

POLDINI, ORIOLO & FRANCESCATO (2004) classified the association *Rhododendro-Juniperetum* into the alliance *Erico-Pinion mugo*, order *Erico-Pinetalia* and class *Erico-Pinetea*.

SURINA (2013) classified the association *Rhododendro hirsuti-Juniperetum* into the alliance *Ericion carneae*, order *Erico-Pinetalia* and class *Erico-Pinetea*.

According to MUCINA et al. (2016) the following classification is also possible:

Rhododendro hirsuti-Ericetea carneae Schubert et. al. 2001

Rhododendro hirsuti-Ericetalia carneae Grabherr et al. 1993

Ericion carneae Rübeler ex Grabherr et al. 1993

Rhododendro chamaecisti-Juniperetum alpinae Poldini, Oriolo et Francescato 2004

laserpitietosum peucedanoidis subass. nov. hoc loco

var. *typica*

var. *Campanula scheuchzeri*

var. *Sesleria caerulea*

var. *Dryas octopetala*

var. *Rubus idaeus*

Rhododendro hirsuti-Juniperetum alpinae Horvat ex Horvat et al. 1974

var. *Paederota lutea*

var. *Polystichum lonchitis*

4. CONCLUSIONS

According to our findings, the dwarf shrub community with *Rhododendron hirsutum* and *Juniperus alpina* in the Julian Alps, which we classified into the association *Rhododendro chamaecisti-Juniperetum alpinae*, is not one of the communities that predominantly occur in the subalpine-alpine belt. We found it mainly on small areas in a mosaic of different communities, in particular subalpine grasslands, willow shrubs and dwarf pine communities. Above the upper forest line we found larger areas with this community only in the vicinity of Spodnji Lepoč in the ridge of Loška Stena above the Bala Valley. At the upper forest line such localities are under the peaks above Soriška Planina (Slatnik, Možic) and in the range of Ratitovec (especially around Mt. Altemaver) – in both cases these are still active grazing areas where small ruminants and even cattle graze in the summer; its stands are predominantly secondary. Especially above the upper forest line (such sites are also on Mt. Črna Prst and under Mt. Mangart) these stands play an important role in protecting against erosion on (occasionally) very rocky sites. Although they occupy small areas they are also important as biotopes, as their stands comprise some species of conservation importance, in particular protected species (Anon. 2004): *Arnica montana*, *Coelogyne viride*, *Convallaria majalis*, *Cyclamen purpura-*

scens, *Iris graminea*, *Gentiana lutea* subsp. *symphyandra*, *Gymnadenia conopsea*, *Huperzia selago*, *Leontopodium alpinum*, *Lycopodium annotinum*, *Nigritella rhelicani*, *Pinguicula alpina*, *Primula auricula*, *Pulsatilla alpina* subsp. *australpina* and *Traunsteinera globosa*, as well as some relatively rare, but not threatened species like *Betula pendula* subsp. *carpatica*, *Geranium argenteum*, *Rhododendron × intermedium*, *Trifolium noricum*, and endemic species *Cerastium subtriflorum* and *Centaurea haynaldii* subsp. *julica*.

Stands of the association *Rhododendro hirsuti-Juniperetum alpinae* are rare on the Trnovski Gozd Plateau. They play a distinctly protective role in Kozja Stena under Mt. Javorški Vrh, as they prevent erosion and karstification. There are more such rocky areas overgrown with dwarf shrubs in the Snežnik Mountains, and this vegetation also prevents karstification. Ždroclje stands are part of the primeval beech forest property listed as a UNESCO World Heritage Site. They comprise also the following protected species: *Convallaria majalis*, *Cyclamen purpurascens*, *Helleborus niger*, *Huperzia selago*, *Leontopodium alpinum*, *Lilium martagon*, the red-listed (Anon. 2002) *Hypericum richeri* subsp. *grisebachii* and the endemic species *Campanula justiniana*.

5. POVZETEK

S hierarhično klasifikacijo in primerjavami s podobnimi združbami v severovzhodni Italiji in severozahodni Hrvaški smo ugotovili, da združbe nizkih grmišč s prevladujočima vrstama *Rhododendron hirsutum* in *Juniperus alpina* lahko uvrstimo v dve asociaciji: *Rhodothamno chamaecisti-Juniperetum alpinae* (Julijske Alpe) in *Rhododendro hirsuti-Juniperetum alpinae* (Trnovski gozd in Snežniško pogorje). Ta nizka grmišča po naših spoznanjih v Julijskih Alpah niso med površinsko prevladujočimi združbami podvisokogorsko-visokogorskega pasu. Večinoma smo jo opazili na majhnih površinah v mozaiku z drugimi združbami, predvsem podvisokogorskimi travišči in grmišči vrb in rušja. Večje površine teh nizkih grmišč nad zgornjo gozdno mejo so v okolici Spodnjega Lepoča v grebenu Loške stene nad dolino Bale. V pasu ob zgornji gozdni meji so takšne površine pod vrhovi nad Soriško planino (Slatnik, Možic) in v pogorju Ratitovca (predvsem v okolici gore Altemaver) – v obeh primerih v območjih nekdanje ali še dejavne poletne paše drobnice in celo goveda in so njeni sestoji tam večinoma drugotni. Predvsem na rastiščih nad zgornjo gozdno mejo (taka so tudi na Črni prsti in pod Mangartom) imajo ti sestoji pomembno varovalno vlogo pred erozijo na sicer ponekod zelo skalnatih rastiščih. Kljub majhnim površinam imajo tudi biotopsko vlogo, saj v njihovih sestojih ponekod uspevajo

tudi nekatere varstveno pomembne vrste, predvsem zavarovane (Anon. 2004): *Arnica montana*, *Coeloglossum viride*, *Convallaria majalis*, *Cyclamen purpurascens*, *Iris graminea*, *Gentiana lutea* subsp. *symphyandra*, *Gymnadenia conopsea*, *Huperzia selago*, *Leontopodium alpinum*, *Lycopodium annotinum*, *Nigritella rhellicani*, *Pinguicula alpina*, *Primula auricula*, *Pulsatilla alpina* subsp. *austroalpina* in *Traunsteinera globosa*, tudi nekatere razmeroma redke, a neogrožene vrste *Betula pendula* subsp. *carpatica*, *Geranium argenteum*, *Rhododendron* × *intermedium*, *Trifolium noricum* ter endemita *Cerastium subtriflorum* in *Centaurea haynaldii* subsp. *julica*.

Sestoji asociacije *Rhododendro hirsuti-Juniperetum alpinae* so v Trnovskem gozdu redkost. V Kozji steni pod Javorškim vrhom imajo izrazito varovalno vlogo, saj preprečujejo erozijo in zakrasevanje. V Snežniškem pogorju je takih skalnatih, z nizkim grmičjem poraslih površin več in njihovo rastje prav tako preprečuje zakrasevanje. V Ždrocljah so ti sestoji sestavni del v Unescov seznam uvrščenega pragozdnega območja. V njih rastejo tudi naslednje zavarovane vrste *Convallaria majalis*, *Cyclamen purpurascens*, *Helleborus niger*, *Huperzia selago*, *Leontopodium alpinum*, *Lilium martagon*, vrsta z rdečega seznama (Anon. 2002) *Hypericum richeri* subsp. *grisebachii* in endemit *Campanula justiniana*.

ACKNOWLEDGEMENTS

Elvica Velikonja turned my attention to the botanical curiosities of Kozja Stena under Mt. Javorški Vrh. Asst. Prof. Dr. Andrej Rozman was my guide in the surveying of the Ždroclje Forest Reserve. Prof. Dr. Boštjan Surina offered his advice, corrections and photographs of the studied community in the Liburnian karst. Dr. Branko Vreš is the caretaker of the FloVegSi database and, together with Brane Anderle, Mag. Andrej

Seliškar, Prof. Dr. Boštjan Surina and Branko Zupan, the co-author of the range map in Figures 1 and 6. Academicians Prof. Dr. Ivan Kreft and Dr. Mitja Zupančič helped me at some nomenclatural problems and arrangement of tables. We also acknowledge the financial support from the Slovenian Research Agency (research core funding No. P1-0236). English translation by Andreja Šalamon Verbič.

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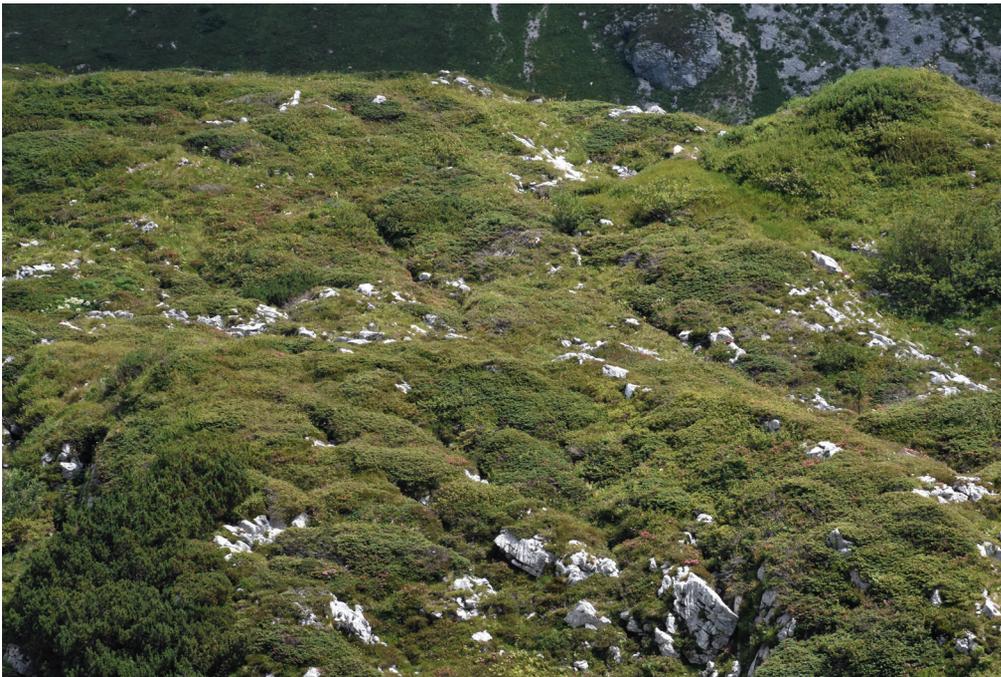


Figure 7: Karstified plateau at Spodnji Lepoč above the Bala Valley with stands of *Juniperus alpina* and *Rhododendron hirsutum*. Photo: I. Dakskobler.

Slika 7: Zakrasele planota pri Spodnjem Lepoču nad dolino Bale s sestoji pritlikavega brina in dlakavega sleča. Foto: I. Dakskobler.



Figure 8: Stand of the association *Rhodothamno-Juniperetum*, Spodnji Lepoč. Photo: I. Dakskobler.
 Slika 8: Sestoj asociacije *Rhodothamno-Juniperetum*, Spodnji Lepoč. Foto: I. Dakskobler.



Figure 9: Stand of the association *Rhodothamno-Juniperetum* with *Genista radiata*, Soriška Planina, near Mt. Možic. Photo: I. Dakskobler.
 Slika 9: Sestoj asociacije *Rhodothamno-Juniperetum* z vrsto *Genista radiata*, Soriška planina, pri Možicu. Foto: I. Dakskobler.



Figure 10: Community of *Juniperus alpina* and *Rhododendron hirsutum*, successional stage in the overgrowing of subalpine pastureland – Soriška Planina. Photo: I. Dakskobler.

Slika 10: Združba pritlikavega brina in dlakavega sleča, sukcesijska stopnja v zaraščanju podvisokogorskega pašnika – Soriška planina. Foto: I. Dakskobler.



Figure 11: Ratitovec Mts., stands of *Juniperus alpina* and *Rhododendron hirsutum* on Mt. Altemaver. Photo: I. Dakskobler.

Slika 11: Pogorje Ratitovca, sestoji pritlikavega brina in dlakavega sleča na ovršju gore Altemaver. Foto: I. Dakskobler.



Figure 12: Stand of the association *Rhodothamno-Juniperetum*, Ratitovec Mts. Photo: I. Dakskobler.
 Slika 12: Sestoj asociacije *Rhodothamno-Juniperetum*, Ratitovec. Foto: I. Dakskobler.



Figure 13: Northern slopes of the eastern ridge of Mt. Črna Prst; community of *Juniperus alpina* and *Rhododendron hirsutum* in the mosaic of shrub communities. Photo: I. Dakskobler.
 Slika 13: Severna pobočja vzhodnega grebena Črne prsti, v mozaiku grmiščnih združb je tudi združba pritlikavega brina in dlakavega sleča. Foto: I. Dakskobler.



Figure 14: Stand of the association *Rhodothamno-Juniperetum*, Mt. Črna Prst. Photo: I. Dakskobler.
 Slika 14: Sestoj asociacije *Rhodothamno-Juniperetum*, Črna prst. Foto: I. Dakskobler.

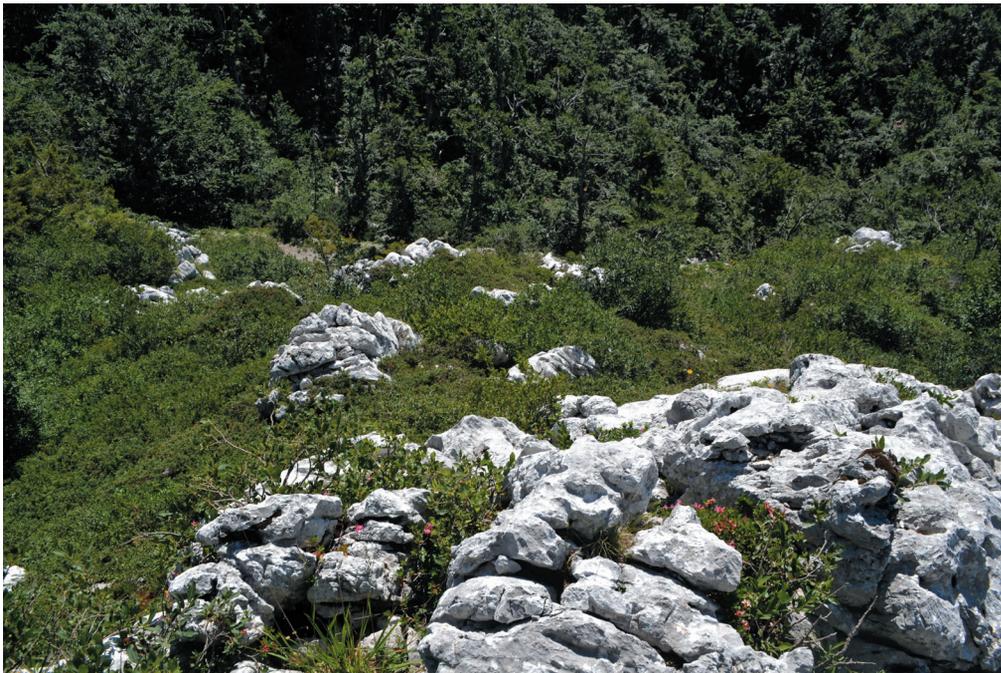


Figure 15: Kozja Stena under Mt. Javorški Vrh in the Trnovski Gozd Plateau – stands of the association *Rhododendro hirsuti-Juniperetum* in the mosaic of shrub communities. Photo: I. Dakskobler.
 Slika 15: Kozja stena pod Javorškim vrhom v Trnovskem gozdu – v mozaiku grmiščnih združb je tudi združba pritlikavega brina in dlakavega sleča. Foto: I. Dakskobler.

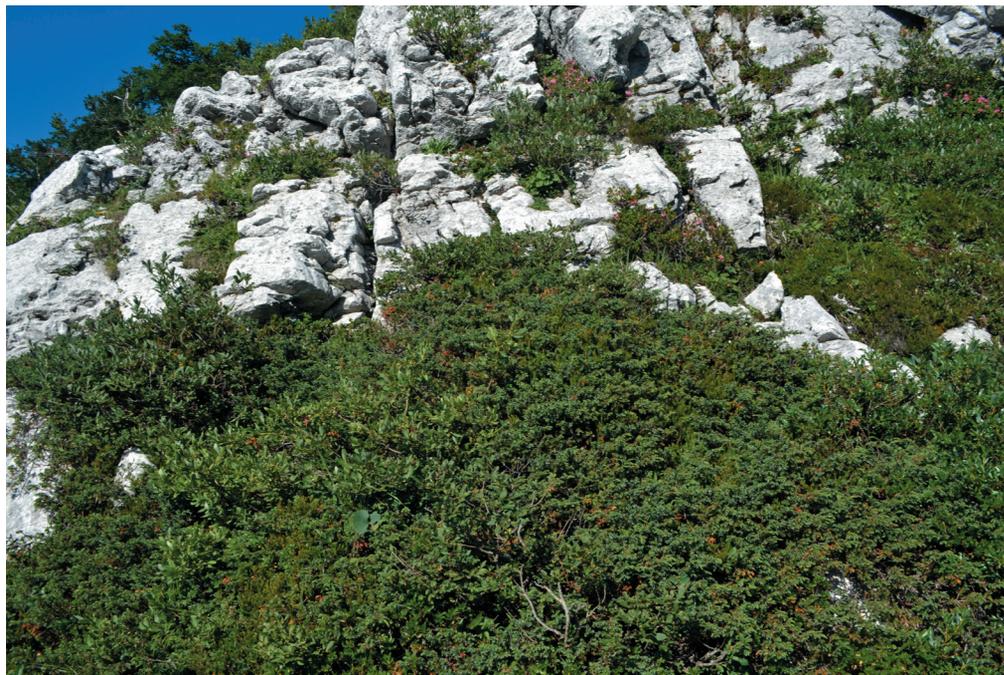


Figure 16: Stand of the association *Rhododendro hirsuti-Juniperetum*, Kozja Stena in the Trnovski Gozd Plateau. Photo: I. Dakskobler.

Slika 16: Sestoj asociacije *Rhododendro hirsuti-Juniperetum*, Kozja stena v Trnovskem gozdu. Foto: I. Dakskobler.

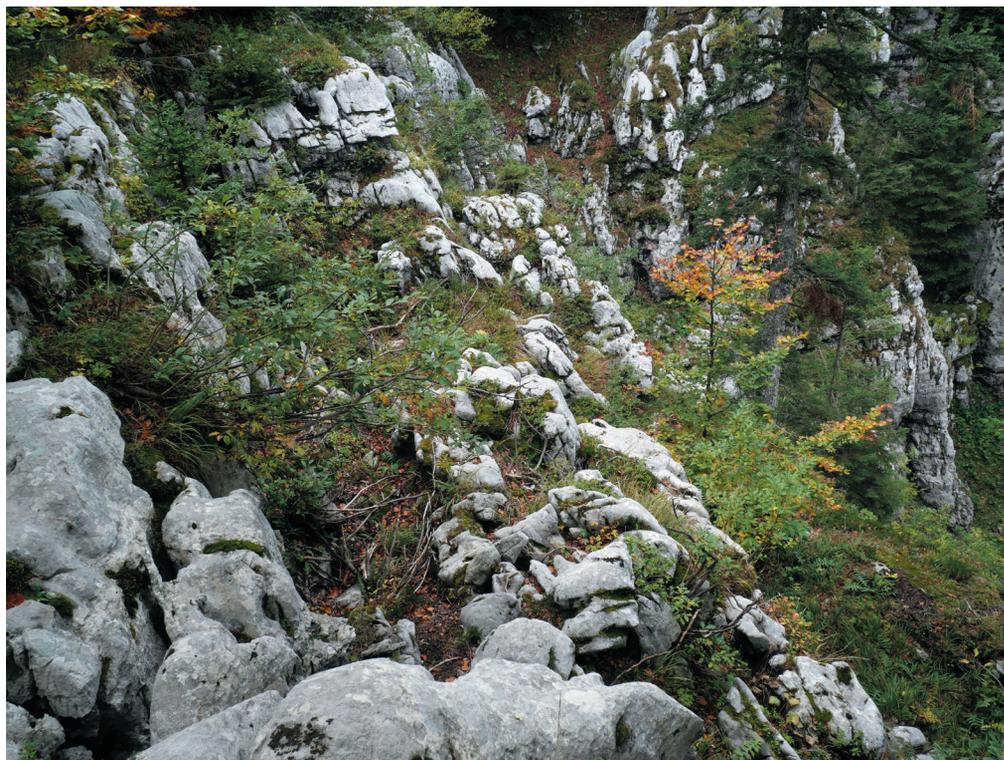


Figure 17: Sites of the association *Rhododendro hirsuti-Juniperetum alpinae*, Ždroclje under Mt. Snežnik. Photo: I. Dakskobler.

Slika 17: Rastišča združbe pritlikavega brina in dlakavega sleča, Ždroclje pod Snežnikom. Foto: I. Dakskobler.



Figure 18: Stand of the association *Rhododendro hirsuti-Juniperetum alpinae*, Ždroclje, detail. Photo: I. Dakskobler.
Slika 18: Sestoj asociacije *Rhododendro hirsuti-Juniperetum*, Ždroclje, detajl. Foto: I. Dakskobler.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Fr.		
RE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Fr.		
Rhodothamnus chamaecistus	E1	3	1	.	1	.	.	+	1	.	.	.	1	.	.	.	.	.	.	.	.	6	29
Bartsia alpina	E1	.	.	.	+	.	.	.	.	+	.	.	.	.	.	1	.	.	.	.	.	3	14
Pinus mugo	E2a	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
Hieracium bifidum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
Differential species of subassociation / Geographical differential species (Razlikovalnice subasociacije / geografske razlikovalnice)																								
Lasertium peucedanoides	E1	+	1	+	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	95	
Astrantia bavarica	E1	+	.	.	2	.	1	1	+	+	+	1	.	.	+	+	+	+	+	+	+	15	71	
Differential species of the variants and subvariants (Razlikovalnice variant in subvariant)																								
Campanula scheuchzeri	E1	.	+	.	1	1	1	1	1	+	1	1	1	1	.	.	.	.	.	.	.	10	48
Vaccinium gaultherioides	E1	.	.	.	2	1	1	2	4	1	.	.	+	.	.	.	.	.	.	.	.	7	33
Hieracium murorum	E1	.	.	.	+	.	+	+	+	+	.	.	+	.	.	.	.	.	.	.	.	5	24
Lonicera caerulea	E2a	.	.	.	.	.	.	r	r	.	+	+	+	.	.	.	.	.	.	.	.	5	24
Aposeris foetida	E1	.	.	.	.	.	+	+	.	.	.	+	.	.	.	.	.	.	.	.	.	4	19
Sesleria caerulea	E1	1	.	+	.	.	.	.	.	.	.	.	.	1	1	2	2	2	1	2	2	10	48
Campanula witaschkiana	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	+	+	.	.	.	5	24
Hieracium villosum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	+	+	+	+	5	24
Valeriana saxatilis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	19
Arctostaphylos alpinus	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	1	1	3	14
Dryas octopetala	E1	.	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	.	3	2	+	5	24
Empetrum hermaphroditum	E1	2	1	5
Rhododendron x intermedium	E2a	+	1	5
Erico-Pinetea																								
Erica carnea	E1	4	2	3	+	2	1	3	1	.	.	.	.	3	2	3	2	3	.	3	3	16	76
Rubus saxatilis	E1	.	1	.	.	.	.	.	+	.	.	1	2	1	.	2	1	1	.	1	+	10	48
Carex ornithopoda	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	1	+	.	5	24
Calamagrostis varia	E1	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
Polygala chamaebuxus	E1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
Genista radiata	E2a	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
Cotoneaster tomentosus	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
Vaccinio-Piceetea																								
Vaccinium myrtillus	E1	1	1	3	3	2	2	3	2	3	4	4	2	.	2	1	2	1	.	2	2	3	19	90
Vaccinium vitis-idaea	E1	2	+	1	1	1	+	1	+	.	.	.	+	.	1	1	2	+	1	1	2	16	76	
Rosa pendulina	E2a	.	1	.	1	+	1	+	+	.	.	1	.	+	+	1	1	.	.	1	1	14	67	
Luzula sylvatica	E1	.	+	+	2	+	1	+	1	+	1	.	1	.	.	.	+	.	.	.	.	12	57
Clematis alpina	E2a	.	.	.	.	+	.	.	+	.	+	.	.	3	+	1	1	1	1	+	1	11	52
Solidago virgaurea	E1	.	+	+	1	+	1	.	.	.	.	.	1	+	+	+	+	+	.	.	+	11	52
Homogyne alpina	E1	.	.	.	1	+	+	.	.	.	.	.	.	1	+	1	+	+	1	+	1	10	48
Picea abies	E2a	.	.	r	+	+	.	.	.	.	.	.	.	+	+	+	+	+	+	+	+	10	48
Calamagrostis villosa	E1	.	.	1	1	.	.	+	.	.	.	+	.	.	.	.	1	+	.	1	.	8	38
Lycopodium annotinum	E1	.	.	+	+	1	+	.	2	.	.	.	.	.	.	.	.	.	.	1	1	7	33
Polystichum lonchitis	E1	.	+	.	.	+	.	+	.	.	.	+	.	.	.	.	.	.	.	.	.	6	29
Huperzia selago	E1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	14
Maianthemum bifolium	E1	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
Melampyrum sylvaticum	E1	.	.	+	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	2	10
Gentiana asclepiadea	E1	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	2	10
Dryopteris dilatata	E1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	2	10

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Pr.	Fr.		
Successive number of relevé (Zaporedna številka popisa)																									
<i>Luzula luzuloides</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	2	10	
<i>Lonicera nigra</i>	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Luzula luzuloides</i> subsp. <i>rubella</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Pyrola minor</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Calamagrostis arundinacea</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	1	5
Cfir																									
<i>Helianthemum alpestre</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1	.	.	.	+	3	14
<i>Carex firma</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	2	10
<i>Carex fuliginosa</i>	E1	.	.	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
Cfer																									
Caricion ferrugineae																									
<i>Carex ferruginea</i>	E1	.	.	.	.	.	.	+	1	.	+	.	.	+	.	.	+	.	.	.	1	.	8	38
<i>Knautia longifolia</i>	E1	+	.	.	.	.	.	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	4	19
<i>Cerastium subtriflorum</i>	E1	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Serratula tinctoria</i> subsp. <i>monticola</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
CA																									
Caricion austroalpinae																									
<i>Koeleria eriostachya</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	+	8	38
<i>Pulsatilla alpina</i> subsp. <i>austroalpina</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	7	33
<i>Festuca calva</i>	E1	.	.	.	.	.	.	.	.	.	+	.	1	.	.	.	.	.	.	.	.	.	6	29
<i>Gentiana lutea</i> subsp. <i>symphyandra</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
<i>Centaurea haynaldii</i> subsp. <i>julica</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	1	5
<i>Carduus crassifolius</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
ES																									
Elyno-Seslerietea																									
<i>Carex sempervirens</i>	E1	.	+	.	.	1	+	.	1	.	.	.	.	+	.	.	.	.	.	.	+	1	11	52
<i>Helianthemum nummularium</i> subsp. <i>grandiflorum</i>	E1	.	+	.	.	.	1	+	.	.	.	1	.	1	+	1	1	1	.	.	.	10	48		
<i>Lotus alpinus</i>	E1	+	.	.	.	.	.	.	.	.	.	.	1	+	.	.	.	.	.	.	.	.	9	43
<i>Juncus monanthos</i>	E1	.	.	.	.	.	.	.	1	.	+	.	1	.	.	.	.	.	.	.	.	.	7	33
<i>Galium anisophyllum</i>	E1	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6	29
<i>Aster bellidiasterum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6	29
<i>Thymus praecox</i> subsp. <i>polytrichus</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	6	29
<i>Leucanthemum heterophyllum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6	29
<i>Cerastium strictum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	24
<i>Betonica alopecuroides</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	24
<i>Anthyllis vulneraria</i> subsp. <i>alpestris</i>	E1	.	+	.	.	.	.	.	.	.	.	.	.	1	+	.	1	.	.	.	.	4	19	
<i>Helictotrichon parlatorei</i>	E1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	4	19
<i>Achillea clavata</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	14
<i>Selaginella selaginoides</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	14
<i>Phyteuma orbiculare</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	3	14
<i>Gentianella anisodonta</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	14
<i>Gentianella anisodonta</i>	E1	1	+	3	14
<i>Hieracium pilosum</i>	E1	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
<i>Hieracium dentatum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
<i>Ranunculus carinthiacus</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
<i>Daphne striata</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
<i>Polygonum viviparum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
<i>Phleum hirsutum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
<i>Scabiosa lucida</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
<i>Erigeron glabratus</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Fr.	Pr.	
Successive number of relevé (Zaporedna številka popisa)																								
<i>Euphrasia salisburgensis</i>	E1	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Agrostis alpina</i>	E1	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Hieractium valdepiosum</i>	E1	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Nigritella rhellicani</i>	E1	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Polygala alpestris</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	1	5
<i>Arabis vochlinensis</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	1	5
<i>Thesium alpinum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	1	5
<i>Traunsteinera globosa</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	1	5
<i>Globularia cordifolia</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	1	5
<i>Leontopodium alpinum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
FB																								
<i>Festuco-Brometea</i>																								
<i>Carlina acaulis</i>	E1	.	+	.	.	.	+	+	.	.	.	+	.	.	.	.	+	.	.	.	.	.	6	29
<i>Koeleria pyramidata</i>	E1	+	.	.	.	.	.	.	1	.	.	+	.	+	.	.	.	.	.	.	.	.	5	24
<i>Cirsium erisithales</i>	E1	.	.	.	.	.	.	.	.	.	.	.	+	+	+	.	.	.	.	+	.	.	5	24
<i>Gymnadenia conopsea</i>	E1	.	+	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	3	14
<i>Bromopsis transsilvanica</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	3	14
<i>Hippocrepis comosa</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	2	10
<i>Euphorbia cyparissias</i>	E1	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	1	5
TG																								
<i>Trifolio-Geranietea</i>																								
<i>Libanotis sibirica</i> subsp. <i>montana</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	1	5
PaT																								
<i>Poo alpinae-Trisetalia</i>																								
<i>Anthoxanthum odoratum</i>	E1	.	+	.	.	.	+	.	1	.	.	+	1	.	.	.	.	.	.	.	.	.	5	24
<i>Trollius europaeus</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	3	14
<i>Poa alpina</i>	E1	.	.	.	.	.	.	.	.	.	+	.	.	.	+	.	.	.	.	.	.	.	2	10
<i>Crocus albiflorus</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	1	5
<i>Ranunculus nemorosus</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	1	5
<i>Viola tricolor</i> subsp. <i>subalpina</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	1	5
MA																								
<i>Molinio-Arrhenatheretea</i>																								
<i>Leontodon hispidus</i>	E1	.	1	.	.	.	.	.	1	.	.	.	+	.	.	.	.	.	.	.	.	.	3	14
<i>Dactylis glomerata</i>	E1	.	.	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	2	10
<i>Deschampsia cespitosa</i>	E1	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	1	5
NS																								
<i>Nardion strictae, Nardetalia strictae</i>																								
<i>Festuca nigrescens</i>	E1	.	+	+	1	1	.	+	1	2	2	1	1	1	1	.	+	.	1	+	.	.	16	76
<i>Potentilla erecta</i>	E1	.	.	+	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	4	19
<i>Agrostis capillaris</i>	E1	.	.	.	1	.	.	+	.	.	.	.	.	.	.	.	+	.	.	.	.	.	4	19
<i>Nardus stricta</i>	E1	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Arnica montana</i>	E1	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Luzula exspectata</i>	E1	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Coeloxossum viride</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
JT																								
<i>Juncetea trifidi</i>																								
<i>Anthoxanthum nipponicum</i>	E1	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Agrostis rupestris</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
MuA																								
<i>Mulgedio-Aconitetea</i>																								
<i>Geranium sylvaticum</i>	E1	.	.	+	.	1	1	1	+	1	+	1	+	.	.	.	+	.	.	.	.	.	13	62
<i>Hypericum maculatum</i>	E1	.	.	.	+	.	.	.	.	1	.	+	+	.	.	.	.	+	.	.	.	.	6	29
<i>Veratrum album</i> (incl. subsp. <i>lobelianum</i>)	E1	.	+	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	4	19

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Pr.	Fr.			
Successive number of relevé (Zaporedna številka popisa)																										
	E1	.	.	.	.	.	+	+	.	1	.	.	+	.	.	.	.	.	.	.	.	.	4	19
<i>Peucedanum ostruthium</i>	E1	.	.	.	.	.	.	.	.	.	.	3	.	+	.	.	.	r	+	.	.	.	4	19
<i>Allium victorialis</i>	E1	.	+	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	3	14
<i>Athyrium filix-femina</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	3	14
<i>Lathyrus occidentalis</i> var. <i>montanus</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	+	.	.	.	.	.	3	14
<i>Cirsium carniolicum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	14
<i>Senecio ovatus</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	14
<i>Aconitum lycoctonum</i> subsp. <i>ranunculifolium</i> (incl. <i>A. lupicida</i>)	E1	.	.	.	.	.	.	.	.	+	1	+	.	.	.	.	.	.	.	.	.	.	3	14
<i>Polygonatum verticillatum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	3	14
<i>Rumex arifolius</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
<i>Thalictrum aquilegifolium</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
<i>Senecio cacaliaster</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	r	+	.	.	.	.	.	2	10
<i>Saxifraga rotundifolia</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Chaerophyllum villarsii</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
BA																										
Betulo-Alnetea																										
<i>Salix waldesteiniana</i>	E2a	.	.	.	1	3	2	2	1	.	.	+	.	3	.	+	+	13	62	
<i>Salix appendiculata</i>	E2a	.	+	.	.	r	+	+	.	+	.	+	1	11	52	
<i>Salix glabra</i>	E2a	.	.	.	1	+	+	+	2	5	24	
<i>Alnus viridis</i>	E2a	+	4	5	24	
<i>Betula pubescens</i> subsp. <i>carpatica</i>	E1	1	5	
CD																										
Caricetalia davallianae																										
<i>Parnassia palustris</i>	E1	+	2	10
<i>Pinguicula alpina</i>	E1	1	5	
AC																										
Arabidetalia caeruleae																										
<i>Soldanella alpina</i>	E1	1	5	
<i>Alchemilla fissa</i>	E1	1	5	
TR																										
Thlaspietea rotundifolii																										
<i>Heliosperma alpestre</i>	E1	+	+	1	+	8	38	
<i>Biscutella laevigata</i>	E1	+	2	10	
<i>Dryopteris villarii</i>	E1	+	2	10	
<i>Valeriana montana</i>	E1	1	5	
<i>Rhodiola rosea</i>	E1	1	5	
Cy																										
Cystopteridion																										
<i>Valeriana tripteris</i>	E1	1	+	.	+	10	48	
<i>Viola biflora</i>	E1	1	7	33	
<i>Saxifraga aizoides</i>	E1	1	5	
<i>Asplenium viride</i>	E1	1	5	
<i>Cystopteris fragilis</i>	E1	+	1	5	
PcSp																										
Physoplexido-Saxifragion petraeae																										
<i>Saxifraga crustata</i>	E1	+	3	14	
<i>Paederota lutea</i>	E1	+	2	10	
<i>Saxifraga hostii</i>	E1	1	5	
PC																										
Potentilletalia caulescentis																										
<i>Bupleurum petraeum</i>	E1	r	+	3	14
<i>Primula auricula</i>	E1	+	+	3	14
<i>Campanula cochlearifolia</i>	E1	r	1	5

		Successive number of relevé (Zaporedna številka popisa)																								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Fr.			
AT	<i>Asplenietea trichomanis</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5		
GU	<i>Epilobietea angustifolia, Galio-Urticetea</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10	
SS	<i>Sambuco-Salicion capreae</i>	E2a	.	.	.	.	.	.	.	.	.	.	.	.	1	+	.	.	.	.	.	.	.	3	14	
AF	<i>Arenonio-Fogion</i>	E1	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5	
	<i>Anemone trifolia</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Cardamine enneaphyllos</i>	E1	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Knautia dryneia</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
FS	<i>Fagetalia sylvaticae</i>	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6	29
	<i>Daphne mezereum</i>	E1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	14
	<i>Luzula nivea</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	14
	<i>Dryopteris filix-mas</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	14
	<i>Mercurialis perennis</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	3	14
	<i>Galium laevigatum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	2	10
	<i>Symphytum tuberosum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
	<i>Melica nutans</i>	E1	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Epilobium montanum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Lilium martagon</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	1	5
	<i>Paris quadrifolia</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Lonicera alpigena</i>	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Galeobdolon flavidum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
QP	<i>Quercetalia pubescenti-petraeae</i>	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	10
QF	<i>Sorbus aria (Aria edulis)</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	1	+	.	.	.	.	.	.	.	.	5	24
	<i>Quercus-Fagetalia</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Anemone nemorosa</i>	E0	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	19
ML	<i>Phyteuma zahlbruckneri</i>	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	19
	<i>Mosses (Mahovi)</i>	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	14
	<i>Rhytidiadelphus triquetrus</i>	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Ctenidium molluscum</i>	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Tortella tortuosa</i>	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Dicranum scoparium</i>	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Polytrichum juniperinum</i>	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5

Legend-Legenda

RE.Rhododendro hirsuti-Ericetalia carnea

L Limestone - apnenec

Li Lithosol - kamnišče

Re Rendzina - rendzina

Pr. Presence (number of relevés in which the species is presented) - število popisov, v katerih se pojavlja vrsta

Fr. Frequency in % - frekvenca v %

Table 2 (Preglednica 2): *Rhodothamnno-Juniperetum alpinae laserpitietosum peucedanoideis* var. *Dryas octopetala* and var. *Rubus idaeus*

Successive number of relevé (Zaporedna številka popisa)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Database number of relevé (Delovna številka popisa)	286789	28960	269578	277624	286911	286910	287070	287078	287103	287072	287087	287074	287075	287077	287076	287088	287079	287071	287073
Elevation in m (Nadmorska višina v m)	1570	1900	1820	1810	1805	1795	1560	1565	1660	1550	1585	1565	1570	1570	1580	1590	1565	1570	1560
Aspect (Legs)	N	SW	W	NE	NE	N	E	SE	S	NE	NEE	NE	NW	E	NW	NE	E	E	SEE
Slope in degrees (Nagib v stopinjah)	10	10	35	35	40	45	10	15	25	10	30	30	30	30	30	30	15	30	25
Parent material (Matična podlaga)	DL	L	L	LM	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Soil (Tla)	Re	Re	Re	Re	Li	Li	Re	Re	Re	Re	Re	Re	Re	Re	Re	Re	Re	Re	Re
Stoniness in % (Kamnitost v %)	5	10	0	5	5	10	10	5	5	10	15	5	10	10	20	5	5	5	5
Cover of shrub layer in % (Zastiranje grmovne plasti v %):	90	70	80	90	90	80	90	90	70	90	95	80	90	90	80	80	85	80	80
Cover of herb layer in % (Zastiranje zeliščne plasti v %):	20	40	30	95	70	60	30	30	90	20	20	30	10	30	40	30	30	40	40
Cover of moss layer in % (Zastiranje mahovne plasti v %):	.	3	.	.	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Number of species (Število vrst)	15	25	25	28	30	33	31	30	29	28	26	20	23	20	22	25	36	18	23
Relevé area (Velikost popisne ploskve)	m ²	10	100	10	10	10	100	100	100	100	100	100	100	100	100	100	100	100	100
Date of taking relevé (Datum popisa)	7/19/2021	8/12/2021	8/2/2017	7/1/2019	9/10/2021	9/10/2021	6/30/2021	6/30/2021	9/11/2021	6/30/2021	6/30/2021	6/30/2021	6/30/2021	6/30/2021	6/30/2021	6/30/2021	6/30/2021	6/30/2021	6/30/2021
Locality (Nahajališče)	Krn-Planina na Polju	Mangart-Na jami	Črna prst	Črna prst	Črna prst	Črna prst	Soriška planina	Soriška planina	Katitovec-Alternaver-Gladki vrh	Soriška planina	Soriška planina-Možic	Soriška planina	Soriška planina	Soriška planina	Soriška planina-Slatnik	Soriška planina	Soriška planina	Soriška planina	Soriška planina
Quadrant (Kvadrant)	9748/1	9547/4	9749/4	9749/4	9749/4	9749/4	9750/3	9750/3	9750/4	9750/3	9749/4	9750/3	9750/3	9750/3	9749/4	9750/3	9750/3	9750/3	9750/3
Coordinate GK Y (D-48)	398413	395889	418053	418055	418077	418120	423044	423240	429949	423151	422833	423135	423126	423125	423098	422787	423151	422985	423147
Coordinate GK X (D-48)	5126602	5144692	5121295	5121296	5121302	5121300	5122207	5122120	5121886	5121969	5122378	5121993	5122001	5122102	5122030	5121978	5122128	5122276	5121989
Diagnostic species of the association (Diagnostične vrste asociacije)	E2a	4	3	3	4	5	4	5	4	5	4	5	5	5	4	4	4	4	5
<i>Juniperus alpina</i>	4	4	4	4	4	3	3	+	2	2	3	3	4	4	3	4	3	1	1
<i>Rhododendron hirsutum</i>	3	4	4	4	4	3	3	+	1	.	.	.	.	+	.	.	.	.	.
<i>Sorbus chamaemespilus</i>	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
<i>Rhodothamnus chamaecistus</i>	E1	+	+	.	1	+	.	.	.	.	.	.	.	.	.	.	.	.	.
<i>Bartsia alpina</i>	E1	.	.	+	1	+	.	.	.	.	.	.	.	.	.	.	.	.	.
<i>Pinus mugo</i>	E2a	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
<i>Hieracium bifidum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pr. Fr.	19	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Fr.	Pr.	
Successful number of relevé (Zaporedna številka popisa)																							
Differential species of subassociation / Geographical differential species (Razlikovalnice subasociacije / geografske razlikovalnice)																							
CA	<i>Laserpitium peucedanoides</i>	E1	1	+	.	.	.	+	+	1	+	.	.	.	+	.	.	.	+	1	+	11	58
ES	<i>Astrantia bavarica</i>	E1	1	.	1	+	4	21
Differential species of lower units (Razlikovalnice variant in subvariant)																							
NS	<i>Festuca nigrescens</i>	E1	+	.	.	.	.	.	+	.	+	+	1	+	1	1	1	+	.	.	12	63
SS	<i>Rubus idaeus</i>	E2a	.	.	.	.	.	3	2	3	.	1	2	1	2	1	1	+	.	.	10	53
ES	<i>Betonica alopecurus</i>	E1	.	.	.	.	.	+	+	1	+	+	+	.	+	.	.	1	.	.	9	47
BA	<i>Salix appendiculata</i>	E2	.	.	.	.	.	+	.	+	+	.	+	.	+	.	.	.	.	.	8	42
FB	<i>Cirsium erisithales</i>	E1	.	.	.	.	.	+	.	1	+	+	+	.	.	.	.	.	.	.	8	42
VP	<i>Vaccinium myrtillus</i>	E1	.	.	.	.	.	2	3	3	.	.	+	.	2	1	.	.	.	.	7	37
FB	<i>Koeleria pyramidata</i>	E1	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	.	.	.	5	26
CA	<i>Centaurea haynaldii</i> subsp. <i>julica</i>	E1	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	.	.	.	5	26
EP	<i>Genista radiata</i>	E2a	2	4	1	.	.	3	.	4	21
Cfr	<i>Dryas octopetala</i>	E1	1	2	+	1	+	.	.	.	.	.	.	.	.	.	.	+	.	.	7	37
ES	<i>Potentilla crantzii</i>	E1	.	+	+	+	1	.	.	.	.	.	.	.	.	.	.	.	.	.	5	26
JT	<i>Campanula scheuchzeri</i>	E1	.	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	3	16
AC	<i>Geranium argenteum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	21
LV	<i>Arctostaphylos alpinus</i>	E1	.	.	.	.	1	+	.	.	.	.	.	.	.	.	.	.	.	.	4	21
PC	<i>Festuca stenantha</i>	E1	.	.	.	.	+	1	1	.	.	.	.	.	.	.	.	.	.	.	4	21
PcSp	<i>Saxifraga crustata</i>	E1	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	4	21
VP	<i>Lonicera caerulea</i>	E2a	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	4	21
ES	<i>Hieracium villosum</i>	E1	.	.	.	.	+	1	1	.	.	.	.	.	.	.	.	.	.	.	4	21
CA	<i>Trifolium noricum</i>	E1	.	.	.	.	+	1	1	.	.	.	.	.	.	.	.	.	.	.	3	16
ES	<i>Anemone narcissiflora</i>	E1	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	3	16
EP	Erico-Pinetea																						
	<i>Rubus saxatilis</i>	E1	+	7	37
	<i>Chamaecytisus hirsutus</i> (incl. subsp. <i>ciliatus</i>)	E1	.	.	.	.	1	+	1	.	.	.	+	.	.	.	.	.	.	.	6	32
	<i>Carex ornithopoda</i>	E1	.	.	.	.	+	.	.	.	.	.	+	.	.	.	+	.	.	.	5	26
	<i>Erica carnea</i>	E1	1	2	.	.	.	.	2	.	.	.	.	.	.	.	.	3	1	.	5	26
	<i>Calamagrostis varia</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
VP	Vaccinio-Piceetea																						
	<i>Vaccinium vitis-idaea</i>	E1	.	.	.	.	.	1	1	.	.	.	.	.	.	.	+	1	1	+	8	42
	<i>Homogyne alpina</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	+	.	5	26
	<i>Picea abies</i>	E2a	.	.	.	.	.	+	.	.	.	.	.	.	.	.	+	.	+	.	5	26
	<i>Clematis alpina</i>	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	16
	<i>Rosa pendulina</i>	E2a	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	2	11
	<i>Calamagrostis arundinacea</i>	E1	.	.	.	.	.	.	1	.	.	.	.	.	.	+	.	.	.	.	2	11
	<i>Luzula sylvatica</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	11
	<i>Huperzia selago</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Lycopodium annotinum</i>	E1	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Picea abies</i>	E2b	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Gentiana asclepiadea</i>	E1	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Dryopteris dilatata</i>	E1	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	1	5
	<i>Polystichum lonchitis</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
	<i>Dryopteris expansa</i>	E1	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	1	5
	<i>Maianthemum bifolium</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Pr.	Fr.	
Successive number of relevé (Zaporedna številka popisa)																						
TG Trifolio-Geranietea																						
<i>Iris graminea</i>	E1	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	.	.	.	.	2	11
<i>Libanotis sibirica</i> subsp. <i>montana</i>	E1	.	.	+	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	16
<i>Thalictrum minus</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	2	11
PaT Poo alpinae-Trisetalia																						
<i>Poa alpina</i>	E1	.	.	+	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	3	16
<i>Crocus albiflorus</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	1	5
MA Molinio-Arrhenatheretea																						
<i>Galium album</i>	E1	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	1	5
NS Nardion strictae, Nardetalia strictae																						
<i>Potentilla erecta</i>	E1	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	+	.	.	.	2	11
<i>Agrostis capillaris</i>	E1	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Antennaria dioica</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	1	5
Mua Mulgedio-Aconitetea																						
<i>Allium victorialis</i>	E1	.	.	+	+	+	.	.	.	+	.	.	.	.	.	.	.	.	.	+	7	37
<i>Athyrium filix-femina</i>	E1	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	2	11
<i>Senecio caciaster</i>	E1	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	2	11
<i>Hypericum maculatum</i>	E1	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	+	.	.	.	2	11
<i>Veratrum album</i> (incl. subsp. <i>lobelianum</i>)	E1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Silene vulgaris</i> subsp. <i>antelopum</i>	E1	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Lathyrus occidentalis</i> var. <i>montanus</i>	E1	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Pimpinella major</i> subsp. <i>rubra</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
BA Betulo-Alnetea																						
<i>Salix waldsteiniana</i>	E2a	.	.	1	+	1	+	.	.	.	1	.	.	1	+	.	.	.	.	.	8	42
<i>Salix glabra</i>	E2a	.	.	.	.	.	+	.	.	+	.	.	.	.	.	1	+	.	.	.	8	42
<i>Ribes alpinum</i>	E2a	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	1	5
CD Caricetalia davallianae																						
<i>Tofieldia calyculata</i>	E1	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	11
<i>Carex capillaris</i>	E1	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Parnassia palustris</i>	E1	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
AC Arabidetea caeruleae																						
<i>Homogyne discolor</i>	E1	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	11
<i>Soldanella alpina</i>	E1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Trifolium pallescens</i>	E1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Carex atrata</i>	E1	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Salix retusa</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	1	5
TR Thlaspietea rotundifolii																						
<i>Adenostyles glabra</i>	E1	.	.	.	.	.	+	.	.	.	+	.	.	.	.	.	.	.	.	.	4	21
<i>Heliosperma alpestre</i>	E1	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	16
<i>Dryopteris villarii</i>	E1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Biscutella laevigata</i>	E1	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
<i>Hieracium dollineri</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
CY Cystopteridion																						
<i>Viola biflora</i>	E1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	21
<i>Valeriana tripteris</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5

Successive number of relevé (Zaporedna številka popisa)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Fr.	Pr.	
PcSp Physoplexido-Saxifragion petraeae																						
<i>Paederota lutea</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 5
<i>Saxifraga hostii</i>	E1	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	1 5
PC Potentilletalia caulescentis																						
<i>Valeriana saxatilis</i>	E1	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 11
SS Sambuco-Salicion capreae																						
<i>Sorbus aucuparia</i>	E2a	+	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	2 11
<i>Sambucus racemosa</i>	E2	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	1 5
TA Thio-Acerion																						
<i>Acer pseudoplatanus</i>	E2a	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	2 11
AF Aremonio-Fagion																						
<i>Knautia drymeia</i>	E1	.	.	.	.	.	.	+	.	.	.	.	+	.	.	.	.	.	.	.	.	4 21
<i>Cardamine enneaphyllos</i>	E1	.	.	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	3 16
<i>Cyclamen purpurascens</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 5
FS Fagetalia sylvaticae																						
<i>Mercurialis perennis</i>	E1	.	.	.	.	.	.	1	.	1	.	.	+	.	.	.	.	.	.	.	.	1 8 42
<i>Dryopteris filix-mas</i>	E1	.	.	.	.	.	.	.	.	.	.	.	1	+	.	.	.	.	.	.	.	3 16
<i>Daphne mezereum</i>	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 11
<i>Galeobdolon flavidum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 5
<i>Melica nutans</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 5
<i>Poa nemoralis</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 5
<i>Myosotis sylvatica</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 5
QP Quercetalia pubescenti-petraeae																						
<i>Convallaria majalis</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 11
<i>Sorbus aria (Aria edulis)</i>	E2a	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 5
QF Quercio-Fagetea																						
<i>Anemone nemorosa</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3 16
ML Mosses (Mahovi)																						
<i>Tortella tortuosa</i>	E0	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2 11
<i>Rhytidiadelphus triquetrus</i>	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1 5

Legend-Legenda

 RE *Rhododendro hirsuti-Ericetalia carnea*

 JT *Juncetea trifidi*

L Limestone - apnenec

D Dolomite - dolomit

M Marlstone - laporovec

Li Lithosol - kamnišče

Re Rendzina - rendzina

Pr. Presence (number of relevés in which the species is presented) - število popisov, v katerih se pojavlja vrsta

Fr. Frequency in % - frekvenca v %

Table 3 (Preglednica 3): *Rhododendro hirsuti-Juniperetum alpinae* var. *Paederota lutea* and var. *Polystichum lonchitis*

Successive number of relevé (Zaporedna številka popisa)		1	2	3	4	5	6	7	8	9				
Database number of relevé (Delovna številka popisa)		273265	269530	269532	269531	269533	286771	286778	286779	286780				
Author of the relevé (Avtor popisa)		ID	ID	ID	ID	ID	IDAR	IDAR	IDAR	IDAR				
Elevation in m (Nadmorska višina v m)		1800	1315	1315	1315	1310	1420	1400	1400	1400				
Aspect (Lega)		N	N	SE	NE	SEE	S	W	S	SSW				
Slope in degrees (Nagib v stopinjah)		0-20	45	40	35	30	70	10	45	35				
Parent material (Matična podlaga)		L	L	L	L	L	DA	L	L	L				
Soil (Tla)		Li	Li	Li	Li	Li	Li	Li	Li	Li				
Stoniness in % (Kamnitost v %)		20	30	20	20	10	100	90	90	90				
Cover of shrub layer in % (Zastiranje grmovne plasti v %):		80	80	90	80	90	30	60	40	60				
Cover of herb layer in % (Zastiranje zeliščne plasti v %):		20	30	20	40	10	60	40	40	60				
Cover of moss layer in % (Zastiranje mahovne plasti v %):		.	10	10	10	10	10	5	20	10				
Number of species (Število vrst)		17	27	20	26	23	34	44	41	36				
Relevé area (Velikost popisne ploskve)	m ²	20	100	100	100	100	100	100	100	100				
Date of taking relevé (Datum popisa)		6/16/2018	7/12/2017	7/12/2017	7/12/2017	7/12/2017	9/27/2021	9/27/2021	9/27/2021	9/27/2021				
Locality (Nahajališče)		Črna prst	Kozja stena-javorški vrh	Kozja stena-javorški vrh	Kozja stena-javorški vrh	Kozja stena-javorški vrh	Ždroclje	Ždroclje	Ždroclje	Ždroclje				
Quadrant (Kvadrant)		9749/4	0049/1	0049/1	0049/1	0049/1	0452/2	0452/2	0452/2	0452/2				
Coordinate GK Y (D-48)	m	418116	415160	415158	415164	415171	459131	459091	459067	459089				
Coordinate GK X (D-48)	m	5121316	5091671	5091663	5091677	5091660	5047805	5047549	5047461	5047316				
Diagnostic species of the association (Diagnostične vrste asociacije)											Pr.	Fr.	Pr.2-9	Fr.2-9
RE <i>Rhododendron hirsutum</i>	E2a	2	3	4	3	3	3	3	3	3	9	100	8	100
LV <i>Juniperus alpina</i>	E2a	4	4	4	4	5	1	1	1	2	9	100	8	100
VP <i>Rosa pendulina</i>	E2a	1	1	1	1	1	1	1	1	1	9	100	8	100
EP <i>Erica carnea</i>	E1	.	1	1	2	2	1	2	+	2	8	89	8	100
BA <i>Salix appendiculata</i>	E2b	.	2	2	r	+	.	.	1	+	6	67	6	75
BA <i>Salix appendiculata</i>	E2a	.	+	+	1	2	1	+	.	1	7	78	7	88
EP <i>Calamagrostis varia</i>	E1	.	+	+	1	+	2	2	2	.	7	78	7	88
Differential species of the variants (Razlikovalnice variant)														
BA <i>Sorbus chamaemespilus</i>	E2a	+	.	+	1	1	.	.	.	.	4	44	3	38
PcSp <i>Paederota lutea</i>	E1	.	2	1	1	1	.	.	.	.	4	44	4	50
BA <i>Salix glabra</i>	E2a	+	+	.	1	.	.	.	.	.	3	33	2	25
VP <i>Polystichum lonchitis</i>	E1	.	.	.	.	.	+	+	1	+	4	44	4	50
ES <i>Phyteuma orbiculare</i>	E1	.	.	.	.	.	+	+	+	+	4	44	4	50
PcSP <i>Campanula cespitosa</i>	E1	.	.	.	.	.	1	+	.	+	3	33	3	38
EP <i>Carex ornithopoda</i>	E1	.	.	.	.	.	+	+	+	.	3	33	4	50
Cfer <i>Carex ferruginea</i>	E1	.	.	.	.	.	+	.	1	+	3	33	3	38
TR <i>Dryopteris villarii</i>	E1	.	.	.	.	.	.	1	+	1	3	33	3	38
TR <i>Leontodon hispidus</i> subsp. <i>hastilis</i>	E1	.	.	.	.	.	.	+	+	+	3	33	3	38
MuA <i>Hypericum richeri</i> subsp. <i>grisebachii</i>	E1	.	.	.	.	.	.	+	+	+	3	33	3	38
PcPs <i>Campanula justiniana</i>	E1	.	.	.	.	.	.	+	+	+	3	33	3	38
TR <i>Asplenium fissum</i>	E1	.	.	.	.	.	.	.	+	+	2	22	2	25
EP <i>Erico-Pinetea</i>														
<i>Rubus saxatilis</i>	E1	1	.	.	+	.	+	+	.	+	5	56	4	50

DAKSKOBLER: PHYTOSOCIOLOGICAL DESCRIPTION OF DWARF SHRUB COMMUNITIES WITH DOMINANT

Successive number of relevé (Zaporedna številka popisa)	1	2	3	4	5	6	7	8	9	Pr.	Fr.	Pr.2-9	Fr.2-9	
<i>Polygala chamaebuxus</i>	E1	.	+	.	+	.	+	.	.	3	33	4	50	
<i>Peucedanum austriacum</i>	E1	.	+	.	.	+	.	.	+	3	33	4	50	
<i>Amelanchier ovalis</i>	E2a	.	.	.	+	.	.	+	.	2	22	2	25	
<i>Cotoneaster tomentosus</i>	E2a	.	.	.	.	+	.	+	.	2	22	2	25
<i>Allium ericetorum</i>	E1	.	.	.	.	.	.	.	+	2	22	2	25
RE <i>Rhodothamnus chamaecistus</i>	E1	+	.	.	.	.	.	.	.	1	11	0	0
<i>Aquilegia nigricans</i>	E1	.	.	.	.	.	.	+	.	1	11	1	13
VP Vaccinio-Piceetea														
<i>Clematis alpina</i>	E2a	1	+	+	.	.	1	1	1	+	7	78	6	75
<i>Lonicera caerulea</i>	E2a	+	+	1	+	+	.	+	.	6	67	5	63	
<i>Picea abies</i>	E2b	.	+	+	.	.	1	+	+	5	56	5	63	
<i>Picea abies</i>	E2a	.	+	+	.	+	.	.	.	3	33	3	38	
<i>Gentiana asclepiadea</i>	E1	.	+	.	.	.	.	+	.	2	22	2	25
<i>Homogyne sylvestris</i>	E1	.	.	.	r	.	.	+	.	2	22	2	25	
<i>Vaccinium myrtillus</i>	E1	.	.	.	.	.	.	+	+	2	22	2	25
<i>Vaccinium vitis-idaea</i>	E1	.	.	.	.	.	.	+	.	1	11	1	13
<i>Abies alba</i>	E1	.	.	.	.	.	.	.	+	1	11	1	13
<i>Huperzia selago</i>	E1	.	.	.	.	.	.	.	+	1	11	1	13
CA Caricion austroalpinae														
<i>Laserpitium peucedanoides</i>	E1	+	.	.	.	.	.	+	.	2	22	1	13
ES Elyno-Seslerietea														
<i>Aster bellidiastrum</i>	E1	1	.	.	+	2	22	2	25
<i>Leontopodium alpinum</i>	E1	+	1	.	2	22	2	25
<i>Sesleria caerulea</i>	E1	1	.	.	.	.	.	.	.	1	11	.	.
<i>Anemone narcissiflora</i>	E1	+	.	.	.	.	.	.	.	1	11	.	.
<i>Hieracium villosum</i>	E1	+	.	.	.	.	.	.	.	1	11	.	.
<i>Betonica alopecuros</i>	E1	.	+	.	.	.	.	.	.	1	11	1	13
<i>Thymus praecox</i> subsp. <i>polytrichus</i>	E1	.	+	.	.	.	.	.	.	1	11	1	13
<i>Erigeron glabratus</i>	E1	.	.	.	.	.	+	.	.	1	11	1	13
<i>Thesium alpinum</i>	E1	.	.	.	.	.	.	+	.	1	11	1	13
FB Festuco-Brometea														
<i>Buphthalmum salicifolium</i>	E1	.	+	.	r	.	+	+	1	2	6	67	6	75
<i>Cirsium erisithales</i>	E1	.	+	.	.	+	+	1	1	2	6	67	6	75
<i>Carlina acaulis</i>	E1	.	.	.	.	.	+	.	+	2	22	2	25
<i>Galium lucidum</i>	E1	.	.	.	.	.	.	.	+	2	22	2	25
<i>Prunella grandiflora</i>	E1	.	.	.	.	.	.	.	+	1	11	1	13
TG Trifolio-Geranietea														
<i>Viola hirta</i>	E1	.	.	.	.	.	+	.	.	1	11	1	13
JT Juncetea trifidi														
<i>Campanula scheuchzeri</i>	E1	.	.	.	.	.	+	.	.	1	11	1	13
MuA Mulgedio-Aconitetea														
<i>Geranium sylvaticum</i>	E1	+	+	+	3	33	3	38
<i>Veratrum album</i> (incl. subsp. <i>lobelianum</i>)	E1	+	.	.	.	.	.	.	.	1	11	.	.
<i>Athyrium filix-femina</i>	E1	.	r	.	.	.	.	.	.	1	11	1	13
<i>Pleurospermum austriacum</i>	E1	.	.	.	.	.	.	+	.	1	11	1	13
<i>Polygonatum verticillatum</i>	E1	.	.	.	.	.	.	+	.	1	11	1	13
<i>Aconitum lupicida</i>	E1	.	.	.	.	.	.	.	+	1	11	1	13
<i>Lathyrus occidentalis</i>	E1	.	.	.	.	.	.	.	+	1	11	1	13
BA Betulo-Alnetea														
<i>Alnus viridis</i>	E2a	+	.	.	.	.	.	.	.	1	11	.	.
<i>Ribes alpinum</i>	E2a	.	.	+	.	.	.	.	.	1	11	1	13
TR Thlaspietea rotundifolii														
<i>Adenostyles glabra</i>	E1	+	1	+	1	1	+	1	+	9	100	8	100	
<i>Ligusticum seguieri</i>	E1	.	.	+	.	.	.	.	.	1	11	1	13
<i>Gymnocarpium robertianum</i>	E1	.	.	.	.	.	.	.	+	1	11	1	13
CY Cystopteridion														
<i>Carex brachystachys</i>	E1	.	.	.	r	.	+	.	.	2	22	2	25	
<i>Valeriana tripteris</i>	E1	.	.	.	r	.	.	1	.	2	22	2	25	
<i>Asplenium viride</i>	E1	2	1	.	2	22	2	25
PcSp Physoplexido-Saxifragion petraeae, Potentilletalia caulecentis														
<i>Phyteuma scheuchzeri</i> subsp. <i>columnae</i>	E1	.	.	.	+	.	.	.	.	1	11	1	13

Successive number of relevé (Zaporedna številka popisa)		1	2	3	4	5	6	7	8	9	Pr.	Fr.	Pr.2-9	Fr.2-9
PC	<i>Rhamnus pumilus</i>	E1	.	.	.	.	.	.	+	.	1	11	1	13
AT	Asplenietea trichomanis													
	<i>Asplenium ruta-muraria</i>	E1	.	+	.	.	.	+	+	.	1	4	44	4
	<i>Asplenium trichomanes</i>	E1	.	+	.	.	.	.	.	.	1	11	1	13
EA	Epilobietea angustifolii													
	<i>Fragaria vesca</i>	E1	.	.	.	.	.	.	.	+	1	11	1	13
SS	Sambuco-Salicion capreae													
	<i>Rubus idaeus</i>	E2a	.	.	.	.	1	.	.	.	1	11	1	13
	<i>Sambucus racemosa</i>	E2	.	.	.	.	.	.	+	.	1	11	1	13
RP	Rhamno-Prunetea													
	<i>Viburnum lantana</i>	E2a	.	.	1	.	+	.	.	.	2	22	2	25
	<i>Cotoneaster integerrimus</i>	E2a	.	.	.	.	.	.	+	.	1	11	1	13
TA	Tilio-Acerion													
	<i>Tilia platyphyllos</i>	E2a	.	.	.	+	.	.	.	.	1	11	1	13
AF	Aremonio-Fagion													
	<i>Cyclamen purpurascens</i>	E1	.	+	+	+	.	1	+	+	2	7	78	7
	<i>Helleborus niger</i>	E1	.	.	.	.	.	1	.	.	1	11	1	13
	<i>Knautia drymeia</i>	E1	.	.	.	.	.	.	+	.	1	11	1	13
	<i>Hacquetia epipactis</i>	E1	.	.	.	.	.	.	.	r	1	11	1	13
FS	Fagetalia sylvaticae													
	<i>Mercurialis perennis</i>	E1	.	.	+	+	+	+	+	.	6	67	6	75
	<i>Melica nutans</i>	E1	.	.	.	+	+	.	+	.	4	44	4	50
	<i>Fagus sylvatica</i>	E2a	.	.	.	+	.	.	+	.	2	22	2	25
	<i>Fagus sylvatica</i>	E2b	.	.	.	r	r	.	.	.	2	22	2	25
	<i>Lonicera alpigena</i>	E2a	.	.	.	.	.	+	.	+	2	22	2	25
	<i>Lilium martagon</i>	E1	+	.	.	.	.	.	.	.	1	11	.	.
	<i>Daphne mezereum</i>	E2a	.	.	.	.	.	.	.	+	1	11	1	13
	<i>Lathyrus vernus</i>	E1	.	.	.	.	.	.	.	+	1	11	1	13
QP	Quercetalia pubescenti-petraeae													
	<i>Melittis melissophyllum</i>	E1	.	.	.	.	+	+	.	.	2	22	2	25
	<i>Convallaria majalis</i>	E1	.	+	.	.	.	.	.	.	1	11	1	13
	<i>Sorbus aria (Aria edulis)</i>	E2b	.	.	.	.	r	.	.	.	1	11	1	13
QF	Quercu-Fagetea													
	<i>Anemone nemorosa</i>	E1	.	.	+	.	.	.	.	.	1	11	1	13
	<i>Hepatica nobilis</i>	E1	.	.	.	.	.	+	.	.	1	11	1	13
	<i>Viola riviniana</i>	E1	.	.	.	.	.	.	+	.	1	11	1	13
ML	Mosses and lichens (Mahovi in lišaji)													
	<i>Tortella tortuosa</i>	E0	.	1	+	1	+	2	1	1	1	8	89	8
	<i>Ctenidium molluscum</i>	E0	.	1	+	.	.	2	2	1	.	5	56	5
	<i>Homalothecium lutescens</i>	E0	.	1	.	.	.	.	.	.	.	1	11	1
	<i>Rhytidiadelphus triquetrus</i>	E0	.	.	.	+	.	.	.	.	1	11	1	13
	<i>Fissidens dubius</i>	E0	.	.	.	.	+	.	.	.	1	11	1	13
	<i>Schistidium apocarpum</i>	E0	.	.	.	.	.	1	.	.	1	11	1	13
	<i>Polytrichum formosum</i>	E0	.	.	.	.	.	.	.	+	1	11	1	13
	<i>Cetraria</i> sp.	E0	.	.	.	.	.	.	.	+	1	11	1	13
	<i>Cladonia pyxidata</i>	E0	.	.	.	.	.	.	.	+	8	11	8	25

Legend-Legenda

ID Igor Dakskobler

AR Andrej Rozman

Cfer *Caricion ferrugineae*

RE *Rhododendro hirsuti-Ericetalia carnea*

PC *Potentilletalia caulescentis*

L Limestone - apnenec

D Dolomite - dolomit

Li Lithosol - kamnišče

Pr. Presence (number of relevés in which the species is presented) - število popisov, v katerih se pojavlja vrsta

Fr. Frequency in % - frekvenca v %

**Table 4: Synoptic table of the associations *Rhodothamno-Juniperetum alpinae* and *Rhododendro hirsuti-Juniperetum alpinae*
 Preglednica 4: Sintezna preglednica asociacij *Rhodothamno-Juniperetum alpinae* in *Rhododendro hirsuti-Juniperetum alpinae***

Successive number (Zaporedna številka)		1	2	3	4	5
Author (Avtor)		LPGOFCF	ID	ID	ID	BS
Sign for syntaxa (Oznaka sintaksonov)		RcJa-I	RhJa-JA	RhJa-SP	RhJa-TGS	RhJa-LK
Number of relevés (Število popisov)		14	21	19	8	22
Diagnostic species of the association <i>Rhodothamno-Juniperetum alpinae</i> (Diagnostične vrste)						
RE	<i>Rhododendron hirsutum</i>	E2a	100	100	100	100
LV	<i>Juniperus alpina</i>	E2a	100	100	100	100
BA	<i>Sorbus chamaemespilus</i>	E2a	86	95	26	38
RE	<i>Rhodothamnus chamaecistus</i>	E1	79	29	21	.
TR	<i>Hieracium bifidum</i>	E1	29	5	5	.
RE	<i>Pinus mugo</i>	E2a	14	10	5	14
ES	<i>Bartsia alpina</i>	E1	14	14	21	.
Diagnostic species of the association <i>Rhododendro hirsuti-Juniperetum alpinae</i> (Diagnostične vrste)						
BA	<i>Salix appendiculata</i>	E2a	14	52	42	100
EP	<i>Calamagrostis varia</i>	E1	43	10	5	88
VP	<i>Rosa pendulina</i>	E2a	50	67	11	100
EP	<i>Erica carnea</i>	E1	64	76	26	100
EP	<i>Erico-Pinetea</i>					
	<i>Rubus saxatilis</i>	E1	36	48	37	50
	<i>Polygala chamaebuxus</i>	E1	7	5	.	50
	<i>Crepis slovenica</i>	E1	7	.	.	.
	<i>Carex ornithopoda</i>	E1	.	24	26	50
	<i>Cotoneaster tomentosus</i>	E2a	.	5	.	25
	<i>Genista radiata</i>	E2a	.	5	21	.
	<i>Chamaecytisus hirsutus</i>	E1	.	.	32	.
	<i>Peucedanum austriacum</i>	E1	.	.	.	50
	<i>Allium ericetorum</i>	E1	.	.	.	25
	<i>Amelanchier ovalis</i>	E2a	.	.	.	25
	<i>Aquilegia nigricans</i>	E1	.	.	.	13
	<i>Carex alba</i>	E1	.	.	.	9
	<i>Arctostaphylos uva-ursi</i>	E1	.	.	.	5
VP	<i>Vaccinio-Piceetea</i>					
	<i>Vaccinium myrtillus</i>	E1	86	90	37	25
	<i>Vaccinium vitis-idaea</i>	E1	79	76	42	13
	<i>Homogyne alpina</i>	E1	64	48	26	.
	<i>Clematis alpina</i>	E2a	36	52	16	75
	<i>Picea abies</i>	E2a	29	48	26	75
	<i>Oxalis acetosella</i>	E1	21	.	.	.
	<i>Luzula sylvatica</i>	E1	14	57	11	.
	<i>Lycopodium annotinum</i>	E1	14	33	5	.
	<i>Lonicera caerulea</i>	E2a	14	24	21	63
	<i>Gymnocarpium dryopteris</i>	E1	14	.	.	.
	<i>Calamagrostis villosa</i>	E1	7	38	.	.
	<i>Polystichum lonchitis</i>	E1	7	29	5	50
	<i>Aposeris foetida</i>	E1	7	19	.	.
	<i>Huperzia selago</i>	E1	7	14	5	23
	<i>Maianthemum bifolium</i>	E1	7	10	5	.
	<i>Luzula luzuloides subsp. rubella</i>	E1	7	5	.	.
	<i>Pyrola minor</i>	E1	7	5	.	.
	<i>Larix decidua</i>	E2	7	.	.	.
	<i>Solidago virgaurea</i>	E1	.	52	.	.
	<i>Hieracium murorum</i>	E1	.	24	.	45
	<i>Gentiana asclepiadea</i>	E1	.	10	5	25
	<i>Luzula luzuloides</i>	E1	.	10	.	.
	<i>Melampyrum sylvaticum</i>	E1	.	10	.	.
	<i>Dryopteris dilatata</i>	E1	.	10	5	.
	<i>Calamagrostis arundinacea</i>	E1	.	5	11	.
	<i>Lonicera nigra</i>	E2a	.	5	.	.
	<i>Dryopteris expansa</i>	E1	.	.	5	.
	<i>Homogyne sylvestris</i>	E1	.	.	.	25
	<i>Abies alba</i>	E1	.	.	.	13

Successive number (Zaporedna številka)		1	2	3	4	5
LV	Loiseleurio-Vaccinieta					
	<i>Rhododendron ferrugineum</i>	E21	29	.	.	.
	<i>Vaccinium gaultherioides</i>	E1	14	33	.	.
	<i>Loiseleuria procumbens</i>	E1	7	.	.	.
	<i>Arctostaphylos alpinus</i>	E1	.	14	21	.
	<i>Empetrum hermaphroditum</i>	E1	.	5	.	.
	<i>Rhododendron x intermedium</i>	E2a	.	5	.	.
Cfir	Caricion firmae, Oxytropido-Elynia					
	<i>Dryas octopetala</i>	E1	7	24	37	.
	<i>Helianthemum alpestre</i>	E1	7	14	5	.
	<i>Salix alpina</i>	E1	7	.	.	.
OE	<i>Antennaria carpatica</i>	E1	7	.	.	.
	<i>Carex firma</i>	E1	.	10	5	.
OE	<i>Carex fuliginosa</i>	E1	.	5	.	.
	<i>Oxytropis neglecta</i>	E1	.	.	11	.
	<i>Carex ornithopodoides</i>	E1	.	.	5	.
	<i>Pedicularis rostratocapitata</i>	E1	.	.	5	.
Cfer	Caricion ferrugineae					
	<i>Horminum prenaicum</i>	E1	43	.	.	.
	<i>Carex ferruginea</i>	E1	7	38	11	38
	<i>Knautia longifolia</i>	E1	7	19	.	.
	<i>Cerastium subtriflorum</i>	E1	.	5	.	.
	<i>Serratula tinctoria</i> subsp. <i>monticola</i>	E1	.	5	16	.
	<i>Hedysarum hedysaroides</i>	E1	.	.	11	.
CA	Caricion austroalpinae					
	<i>Laserpitium peucedanoides</i>	E1	21	95	58	13
	<i>Pimpinella alpina</i>	E1	21	.	.	.
	<i>Festuca calva</i>	E1	14	29	21	.
	<i>Carduus crassifolius</i>	E1	14	5	5	.
	<i>Koeleria eriostachya</i>	E1	.	38	5	.
	<i>Pulsatilla alpina</i> subsp. <i>austroalpina</i>	E1	.	33	5	.
	<i>Gentiana lutea</i> subsp. <i>symphyandra</i>	E1	.	10	16	.
	<i>Centaurea haynaldii</i> subsp. <i>julica</i>	E1	.	5	26	.
	<i>Trifolium noricum</i>	E1	.	.	16	.
	<i>Scorzonera rosea</i>	E1	.	.	11	.
ES	Elyno-Seslerietea					
	<i>Sesleria caerulea</i>	E1	64	48	68	.
	<i>Betonica alopecuros</i>	E1	36	19	47	13
	<i>Polygonum viviparum</i>	E1	36	10	26	.
	<i>Carex sempervirens</i>	E1	29	52	53	.
	<i>Helianthemum nummularium</i> subsp. <i>grandiflorum</i>	E1	14	48	53	.
	<i>Galium anisophyllum</i>	E1	14	29	58	.
	<i>Daphne striata</i>	E1	14	10	.	.
	<i>Anemone narcissiflora</i>	E1	14	.	16	.
	<i>Lotus alpinus</i>	E1	7	43	16	.
	<i>Juncus monanthos</i>	E1	7	33	5	.
	<i>Aster bellidiastrum</i>	E1	7	29	11	25
	<i>Thymus praecox</i> subsp. <i>polytrichus</i>	E1	7	29	26	13
	<i>Phyteuma orbiculare</i>	E1	7	14	16	50
	<i>Selaginella selaginoides</i>	E1	7	14	.	.
	<i>Scabiosa lucida</i>	E1	7	10	.	.
	<i>Globularia cordifolia</i>	E1	7	5	.	.
	<i>Festuca norica</i>	E1	7	.	.	.
	<i>Astrantia bavarica</i>	E1	.	71	21	.
	<i>Campanula witasekiana</i>	E1	.	24	5	.
	<i>Cerastium strictum</i>	E1	.	24	16	.
	<i>Hieracium villosum</i>	E1	.	24	21	.
	<i>Leucanthemum heterophyllum</i>	E1	.	24	5	.
	<i>Anthyllis vulneraria</i> subsp. <i>alpestris</i>	E1	.	19	.	.
	<i>Achillea clavinae</i>	E1	.	14	11	.
	<i>Gentianella anisodonta</i>	E1	.	14	5	.
	<i>Helictotrichon parlatoresi</i>	E1	.	14	.	.
	<i>Hieracium dentatum</i>	E1	.	10	.	.

Successive number (Zaporedna številka)		1	2	3	4	5
<i>Hieracium pilosum</i>	E1	.	10	5	.	.
<i>Phleum hirsutum</i>	E1	.	10	.	.	.
<i>Ranunculus carinthiacus</i>	E1	.	10	.	.	9
<i>Agrostis alpina</i>	E1	.	5	.	.	.
<i>Arabis vochinensis</i>	E1	.	5	.	.	.
<i>Erigeron glabratus</i>	E1	.	5	5	13	9
<i>Euphrasia salisburgensis</i>	E1	.	5	.	.	.
<i>Hieracium valdepilosum</i>	E1	.	5	.	.	.
<i>Leontopodium alpinum</i>	E1	.	5	.	25	.
<i>Nigritella rhellicani</i>	E1	.	5	.	.	.
<i>Polygala alpestris</i> (incl. subsp. <i>croatica</i>)	E1	.	5	11	.	5
<i>Thesium alpinum</i>	E1	.	5	.	13	.
<i>Traunsteinera globosa</i>	E1	.	5	11	.	.
<i>Potentilla crantzii</i>	E1	.	.	26	.	.
<i>Acinos alpinus</i>	E1	.	.	5	.	.
<i>Alchemilla alpigena</i>	E1	.	.	5	.	.
<i>Gentiana verna</i>	E1	.	.	5	.	.
SJ Seslerietea juncifoliae						
<i>Sesleria juncifolia</i>	E1	.	.	.	.	54
FB Festuco-Brometea						
<i>Carlina acaulis</i>	E1	7	29	16	25	27
<i>Helictotrichon praeustum</i>	E1	7	.	.	.	.
<i>Prunella grandiflora</i>	E1	7	.	.	13	.
<i>Bromopsis transsilvanica</i>	E1	.	14	79	.	.
<i>Cirsium erisithales</i>	E1	.	24	42	75	59
<i>Koeleria pyramidata</i>	E1	.	24	26	.	.
<i>Gymnadenia conopsea</i>	E1	.	14	16	.	5
<i>Hippocrepis comosa</i>	E1	.	10	.	.	.
<i>Euphorbia cyparissias</i>	E1	.	5	.	.	.
<i>Bupthalmum salicifolium</i>	E1	.	.	16	75	45
<i>Carex humilis</i>	E1	.	.	5	.	.
<i>Galium lucidum</i>	E1	.	.	.	25	41
<i>Thesium linophyllum</i>	E1	.	.	.	.	68
<i>Teucrium montanum</i>	E1	.	.	.	.	5
TG Trifolio-Geranietea						
<i>Thalictrum minus</i>	E1	7	.	11	.	.
<i>Libanotis sibirica</i> subsp. <i>montana</i>	E1	.	5	16	.	.
<i>Iris graminea</i>	E1	.	.	11	.	.
<i>Viola hirta</i>	E1	.	.	.	13	.
<i>Laserpitium siler</i>	E1	.	.	.	.	32
<i>Laserpitium latifolium</i>	E1	.	.	.	.	18
<i>Ruta divaricata</i>	E1	.	.	.	.	5
PaT Poo alpinae-Trisetetalia						
<i>Anthoxanthum odoratum</i> agg.	E1	21	29	.	.	.
<i>Poa alpina</i>	E1	7	10	16	.	.
<i>Trollius europaeus</i>	E1	7	14	.	.	.
<i>Crocus albiflorus</i>	E1	.	5	5	.	.
<i>Ranunculus nemorosus</i>	E1	.	5	.	.	.
<i>Viola tricolor</i> subsp. <i>subalpina</i>	E1	.	5	.	.	.
MA Molinio-Arrhenatheretea						
<i>Veronica chamaedrys</i>	E1	7	.	.	.	.
<i>Leontodon hispidus</i> s. lat.	E1	.	14	.	38	5
<i>Dactylis glomerata</i>	E1	.	10	.	.	.
<i>Deschampsia cespitosa</i>	E1	.	5	.	.	.
<i>Galium album</i>	E1	.	.	5	.	.
<i>Galium mollugo</i>	E!	.	.	.	.	9
NS Nardion strictae, Nardetalia strictae						
<i>Festuca nigrescens</i>	E1	21	76	63	.	.
<i>Potentilla erecta</i>	E1	7	19	11	.	.
<i>Galium pumilum</i>	E1	7	.	.	.	.
<i>Agrostis capillaris</i>	E1	.	19	5	.	.
<i>Arnica montana</i>	E1	.	5	.	.	.
<i>Coeloglossum viride</i>	E1	.	5	.	.	.

Successive number (Zaporedna številka)		1	2	3	4	5
<i>Luzula exspectata</i>	E1	.	5	.	.	.
<i>Nardus stricta</i>	E1	.	5	.	.	.
<i>Antennaria dioica</i>	E1	.	.	5	.	.
JT <i>Juncetea trifidi</i>						
<i>Campanula scheuchzeri</i>	E1	14	48	16	13	18
<i>Potentilla aurea</i>	E1	7	.	.	.	.
<i>Agrostis rupestris</i>	E1	.	5	.	.	.
MuA <i>Mulgedio-Aconitetea</i>						
<i>Geranium sylvaticum</i>	E1	43	62	.	38	.
<i>Hypericum maculatum</i>	E1	29	29	11	.	5
<i>Aconitum tauricum</i>	E1	21	.	.	.	.
<i>Peucedanum ostruthium</i>	E1	14	19	.	.	.
<i>Saxifraga rotundifolia</i>	E1	14	5	.	.	.
<i>Rumex arifolius</i>	E1	7	10	.	.	.
<i>Chaerophyllum villarsii</i>	E1	7	5	.	.	.
<i>Geum rivale</i>	E1	7	.	.	.	.
<i>Allium victorialis</i>	E1	.	19	37	.	.
<i>Veratrum album</i> (incl. subsp. <i>lobelianum</i>)	E1	.	19	5	.	5
<i>Aconitum lycoctonum</i> subsp. <i>ranunculifolium</i> (incl. <i>A. lupicida</i>)	E1	.	14	.	13	5
<i>Cirsium carniolicum</i>	E1	.	14	.	.	.
<i>Lathyrus occidentalis</i> s. lat.	E1	.	14	5	13	.
<i>Polygonatum verticillatum</i>	E1	.	14	.	13	.
<i>Senecio ovatus</i>	E1	.	14	.	.	.
<i>Athyrium filix-femina</i>	E1	.	14	11	13	.
<i>Senecio cacaliaster</i>	E1	.	10	11	.	.
<i>Thalictrum aquilegifolium</i>	E1	.	10	.	.	.
<i>Pimpinella major</i> subsp. <i>rubra</i>	E1	.	.	5	.	.
<i>Silene vulgaris</i> subsp. <i>antelopum</i>	E1	.	.	5	.	.
<i>Hypericum richeri</i> subsp. <i>grisebachii</i>	E1	.	.	.	38	.
<i>Pleurospermum austriacum</i>	E1	.	.	.	13	9
<i>Ranunculus platanifolius</i>	E1	.	.	.	.	9
BA <i>Betulo-Alnetea</i>						
<i>Salix waldsteiniana</i>	E2a	50	62	42	.	.
<i>Salix glabra</i>	E2a	29	24	42	25	.
<i>Alnus viridis</i>	E2a	.	24	.	.	.
<i>Betula pubescens</i> subsp. <i>carpatica</i>	E1	.	5	.	.	.
<i>Ribes alpinum</i>	E2a	.	.	5	13	.
CD <i>Caricetalia davallianae</i>						
<i>Pinguicula alpina</i>	E1	7	5	.	.	.
<i>Tofieldia calyculata</i>	E1	7	.	11	.	.
<i>Seleria uliginosa</i>	E1	7	.	.	.	.
<i>Parnassia palustris</i>	E1	.	10	5	.	.
<i>Carex capillaris</i>	E1	.	.	5	.	.
AC <i>Arabidetalia caeruleae</i>						
<i>Salix retusa</i>	E1	7	.	5	.	.
<i>Soldanella alpina</i>	E1	7	5	5	.	.
<i>Alchemilla fissa</i>	E1	.	5	.	.	.
<i>Geranium argenteum</i>	E1	.	.	21	.	.
<i>Homogyne discolor</i>	E1	.	.	11	.	.
<i>Carex atrata</i>	E1	.	.	5	.	.
<i>Trifolium pallescens</i>	E1	.	.	5	.	.
TR <i>Thlaspietea rotundifolii</i>						
<i>Adenostyles glabra</i>	E1	14	.	21	100	36
<i>Biscutella laevigata</i>	E1	7	10	5	.	23
<i>Dryopteris villarii</i>	E1	7	10	5	38	.
<i>Doronicum grandiflorum</i>	E1	7	.	.	.	.
<i>Heliosperma alpestre</i>	E1	.	38	16	.	.
<i>Rhodiola rosea</i>	E1	.	5	.	.	.
<i>Valeriana montana</i>	E1	.	5	.	.	14
<i>Hieracium dollineri</i>	E1	.	.	5	.	.
<i>Asplenium fissum</i>	E1	.	.	.	25	5
<i>Ligusticum seguieri</i>	E1	.	.	.	13	5

Successive number (Zaporedna številka)		1	2	3	4	5
<i>Gymnocarpium robertianum</i>	E1	.	.	.	13	54
<i>Athamanta cretensis</i>	E1	.	.	.	.	45
<i>Peltaria alliacea</i>	E1	.	.	.	.	14
<i>Festuca nitida</i>	E1	.	.	.	.	5
<i>Petasites paradoxus</i>	E1	.	.	.	.	5
<i>Scrophularia laciniata</i>	E1	.	.	.	.	5
<i>Trisetum argenteum</i>	E1	.	.	.	.	5
<i>Dryopteris submontana</i>	E1	.	.	.	.	5
Cy Cystopteridion						
<i>Valeriana tripteris</i>	E1	43	48	5	25	27
<i>Viola biflora</i>	E1	36	33	21	.	5
<i>Asplenium viride</i>	E1	.	5	.	25	18
<i>Cystopteris fragilis</i>	E1	.	5	.	.	5
MC Saxifraga aizoides	E1	.	5	.	.	.
<i>Carex brachystachys</i>	E1	.	.	.	25	23
PcSp Physoplexido-Saxifragion petraeae						
<i>Saxifraga crustata</i>	E1	.	14	21	.	.
<i>Paederota lutea</i>	E1	.	10	5	50	.
<i>Saxifraga hostii</i>	E1	.	5	5	.	.
<i>Campanula justiniana</i>	E1	.	.	.	38	14
<i>Campanula cespitosa</i>	E1	.	.	.	38	9
<i>Phyteuma scheuchzeri</i> subsp. <i>columnae</i>	E1	.	.	.	13	.
<i>Dphne alpina</i>	E2a	.	.	.	.	32
<i>Aquilegia kitabeliana</i>	E1	.	.	.	.	9
PC Potentilletalia caulescentis						
<i>Campanula cochlearifolia</i>	E1	7	5	.	.	77
<i>Valeriana saxatilis</i>	E1	.	19	11	.	.
<i>Bupleurum petraeum</i>	E1	.	14	.	.	.
<i>Primula auricula</i>	E1	.	14	.	.	.
<i>Festuca stenantha</i>	E1	.	.	21	.	.
<i>Rhamnus pumilus</i>	E1	.	.	.	13	.
AT Asplenietea trichomanis						
<i>Asplenium ruta-muraria</i>	E1	.	5	.	50	27
<i>Asplenium trichomanes</i>	E1	.	.	.	13	.
<i>Hieracium bupleuroides</i>	E1	.	.	.	.	9
<i>Kernera saxatilis</i>	E1	.	.	.	.	5
EA Epilobietea angustifolii, Galio-Urticetea						
<i>Urtica dioica</i>	E1	.	10	.	.	.
<i>Fragaria vesca</i>	E1	.	.	.	13	14
SS Sambuco-Salicion capreae						
<i>Sorbus aucuparia</i>	E2a	14	.	11	.	.
<i>Rubus idaeus</i>	E2a	.	14	53	13	.
<i>Sambucus racemosa</i>	E2	.	.	5	13	.
RP Rhamno-Prunetea						
<i>Viburnum lantana</i>	E2a	.	.	.	22	.
<i>Cotoneaster integerrimus</i>	E2a	.	.	.	11	41
TA Tilio-Acerion						
<i>Veronica montana</i>	E1	7	.	.	.	.
<i>Polystichum aculeatum</i>	E1	7	.	.	.	.
<i>Acer pseudoplatanus</i>	E2a	.	.	5	.	5
<i>Acer pseudoplatanus</i>	E1	.	.	5	.	.
<i>Tilia platyphyllos</i>	E2a	.	.	.	13	.
<i>Tephrosieris longifolia</i>	E1	.	.	.	.	5
AF Aremonio-Fagion						
<i>Anemone trifolia</i>	E1	14	5	.	.	.
<i>Cyclamen purpurascens</i>	E1	14	.	5	88	91
<i>Knautia drymeia</i>	E1	7	5	21	13	.
<i>Omphalodes verna</i>	E1	7	.	.	.	.
<i>Cardamine enneaphyllos</i>	E1	.	5	16	.	.
<i>Hacquetia epipactis</i>	E1	.	.	.	13	5
<i>Helleborus niger</i>	E1	.	.	.	13	.
<i>Euphorbia carniolica</i>	E1	.	.	.	.	5

Successive number (Zaporedna številka)		1	2	3	4	5	
FS	Fagetalia sylvaticae						
	<i>Daphne mezereum</i>	E2a	50	29	11	13	.
	<i>Dryopteris filix-mas</i>	E1	21	14	16	.	5
	<i>Lilium martagon</i>	E1	7	5	.	.	.
	<i>Luzula nivea</i>	E1	7	14	.	.	.
	<i>Melica nutans</i>	E1	7	5	5	50	5
	<i>Myosotis sylvatica</i>	E1	7	.	5	.	.
	<i>Paris quadrifolia</i>	E1	7	5	.	.	.
	<i>Mercurialis perennis</i>	E1	.	14	42	75	9
	<i>Galium laevigatum</i>	E1	.	10	.	.	.
	<i>Symphytum tuberosum</i>	E1	.	10	.	.	.
	<i>Galeobdolon flavidum</i>	E1	.	5	5	.	.
	<i>Epilobium montanum</i>	E1	.	5	.	.	.
	<i>Lonicera alpigena</i>	E2a	.	5	.	25	14
	<i>Poa nemoralis</i>	E1	.	.	5	.	.
	<i>Fagus sylvatica</i>	E2a	.	.	.	50	9
	<i>Lathyrus vernus</i>	E1	.	.	.	13	.
	<i>Scrophularia nodosa</i>	E1	.	.	.	.	5
QP	Quercetalia pubescenti-petraeae						
	<i>Sorbus aria</i> (<i>Aria edulis</i>)	E2a	7	10	5	13	.
	<i>Convallaria majalis</i>	E1	.	.	11	13	9
	<i>Melittis melissophyllum</i>	E1	.	.	.	25	5
QF	Quero-Fagetea						
	<i>Carex digitata</i>	E1	7	.	.	.	41
	<i>Melampyrum pratense</i>	E1	7	.	.	.	.
	<i>Anemone nemorosa</i>	E1	.	24	16	13	9
	<i>Phyteuma zahlbruckneri</i>	E1	.	5	.	.	.
	<i>Hepatica nobilis</i>	E1	.	.	.	13	5
	<i>Viola riviniana</i>	E1	.	.	.	13	.
O	Other species (Druge vrste)						
	<i>Hiercium</i> sp.	E1	.	.	.	.	9
ML	Mosses and lichens (Mahovi in lišaji)						
	<i>Ctenidium molluscum</i>	E0	.	19	.	63	.
	<i>Rhytiadelphus triquetrus</i>	E0	.	19	5	13	.
	<i>Tortella tortuosa</i>	E0	.	14	11	100	.
	<i>Dicranum scoparium</i>	E0	.	5	.	.	.
	<i>Polytrichum juniperinum</i>	E0	.	5	.	.	.
	<i>Fissidens dubius</i>	E0	.	.	.	13	.
	<i>Homalothecium lutescens</i>	E0	.	.	.	13	.
	<i>Polytrichum formosum</i>	E0	.	.	.	13	.
	<i>Schistidium apocarpum</i>	E0	.	.	.	13	.
	<i>Cetraria</i> sp.	E0	.	.	.	13	.
	<i>Cladonia pyxidata</i>	E0	.	.	.	13	.

Legend-Legenda

 1 RcJa-I *Rhodothamno chamaecisti-Juniperetum alpinae*, SE Alps in NE Italy, POLDINI, ORIOLO & FRANCESCATO (2004)

 2 RcJa-JA *Rhodothamno-Juniperetum alpinae laserpitietosum peucedanoidis*, this article, Table 1

 3 RcJa-SP *Rhodothamno-Juniperetum alpinae laserpitietosum peucedanoidis* var. *Dryas octopatala* and var. *Rubus idaeus*, this article, Table 2

 4 RhJa-TGS *Rhododendro hirsuti-Juniperetum alpinae* var. *Paederota lutea* and var. *Polystichum lonchitis*, this article, Table 3

 5 RhJa-LK *Rhododendro hirsuti-Juniperetum alpinae*, Liburnian karst (Liburnijski kras), SURINA (2013)

ID Igor Dakskobler

BS Boštjan Surina

LP Livio Poldinii

GO Giuseppe Oriolo

CF Carlo Francescato

 RE *Rhododendro hirsuti-Ericetalia carnea*

MC Montio-Cardaminetea