

# Phytosociological analysis of acidophytic alpine mat-grass swards in the Julian Alps and the Karawanks

Igor Dakskobler<sup>1</sup>, Boštjan Surina<sup>2</sup>  & Tone Wraber<sup>†</sup>

**Key words:** alpine vegetation, *Caricion curvulae*, *Nardion strictae*, Mangart, Triglav National Park, Slovenia.

**Ključne besede:** alpinska vegetacija, *Caricion curvulae*, *Nardion strictae*, Mangart, Triglavski narodni park, Slovenija.

Corresponding author:  
Igor Dakskobler  
E-mail:  
igor.dakskobler@zrc-sazu.si

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## Abstract

Acidophytic alpine mat-grass swards are rare in the alpine belt of the predominantly calcareous Southeastern Alps of Slovenia, mostly occurring where limestone is admixed with marlstone or chert. Those for which we were able to make phytosociological relevés can be classified mainly into two syntaxa: *Carici curvulae-Nardetum strictae vaccinietosum gaultherioidis* and *Sieversio-Nardetum strictae vaccinietosum*. At slightly lower elevations, in the forest zone of the subalpine plateau Pokljuka, we found similar swards occupying small areas in frost hollows with luvisol on limestone. They include character species of various subalpine-alpine sward and snow bed communities and are classified into the syntaxon *Homogyno alpinae-Nardetum scorzoneroideetosum croceae*.

## Izvleček

V pretežno karbonatnih Jugovzhodnih Alpah v Sloveniji so kisloljubna travišča v alpskem pasu redkost in se pojavljajo tam, kjer je apnencu primešan laporovec ali roženec. Tiste, ki smo jih uspeli fitocenološko popisati, lahko uvrstimo predvsem v dva sintaksona: *Carici curvulae-Nardetum strictae vaccinietosum gaultherioidis* in *Sieversio-Nardetum strictae vaccinietosum*. Nekoliko nižje, še v gozdnem pasu visokogorske planote Pokljuka, smo podobna travišča našli na majhnih površinah v mraziščnih kotanjah z izpranimi tlemi na apnencu. V njih rastejo značilne vrste različnih subalpsko-alpskih združb travišč in snežnih dolinic. Uvrščamo jih v sintakson *Homogyno alpinae-Nardetum scorzoneroideetosum croceae*.

1 Scientific Research Centre of the Slovenian Academy of Sciences and Arts, Institute of Biology, Regional unit Tolmin, Tolmin, Slovenia.

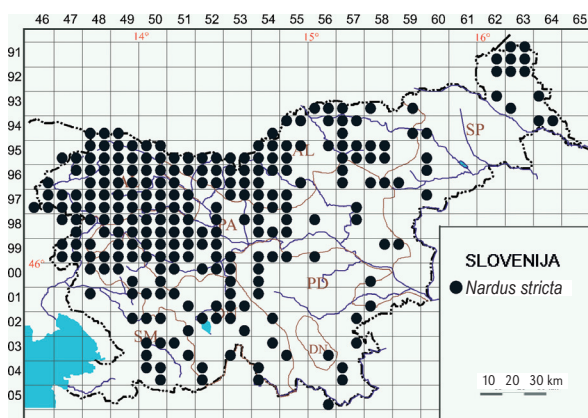
2 Natural History Museum Rijeka, Rijeka, Croatia, and University of Primorska, Faculty of Mathematics, Natural Sciences and Information Technologies, Koper, Slovenia.

## Introduction

Mat-grass (*Nardus stricta*) is one of the most characteristic species of acidophytic grasslands in Slovenia. This grass is quite widespread in the Slovenian mountains, despite of the predominantly calcareous bedrock of our Alps (with the exception of the Pohorje range) – Figure 1. Phytosociologists classify alpine mat-grass swards into two classes: *Nardetea strictae* (secondary mat-grass swards in the forest belt) and *Juncetea trifidi* (which comprises acidophytic subalpine and alpine swards).

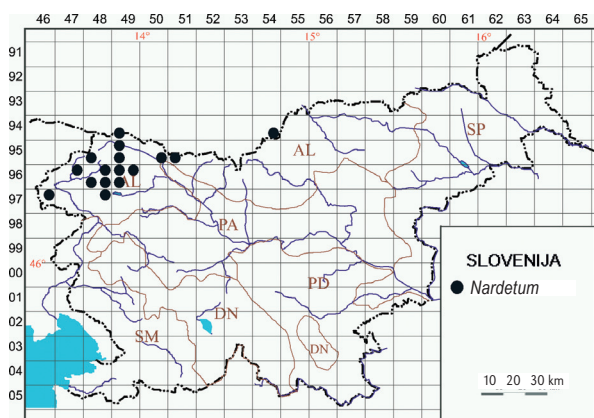
Šilc & Čarni (2012) in their conspectus of vegetation syntaxa of Slovenia list several *Nardus stricta* associations in the lowland and submontane to the lower montane belt of Slovenia, and only one association (*Homogyno alpinae-Nardetum strictae*), which stands are distributed also in the upper montane belt. Its largest areas are in northern and north-eastern Slovenia, in the Smrekovec Mountains, on the Pohorje Massif and Mt. Košenjak. The first phytosociological table of the montane-subalpine-alpine mat-grass swards and pastures for the territory of present-day Slovenia was published by Aichinger (1933), who classified them into the association *Nardetum strictae*. He published two tables with relevés from the Austrian and the Slovenian part of the Karawanks and gave a detailed, still valid description of the characteristic species combination of these swards, their ecology and syndynamic processes. He pointed out that this community can also develop in calcareous mountains, on specific sites where limestone or dolomite is mixed with marl, claystone or chert, or where the soil is leached or acidified. These communities therefore vary considerably in the size of the areas they occupy, and in the alpine belt in particular they can colonise areas as small as a few square metres. Aichinger's name *Nardetum strictae* is too general (as it comprises the

entire range of mat-grass communities), so phytosociologists who subsequently described several mat-grass dominated communities referred to it only as a synonym of the association *Sieversio-Nardetum strictae* (Grabherr, 1993: 361). This association could include Aichinger's relevés from Mt. Peca and Ovčji Vrh (Kozjak) in the alpine belt (1940 m – 2050 m) – Table 35 on page 141 (Aichinger, ibid.). On the other hand, according to the current classification some of his relevés from the montane-subalpine belt (Table 33 on page 134) probably belong to the association *Homogyno alpinae-Nardetum strictae*, which is documented with relevés and a table from the Pohorje Massif (Kaligarič & Škornik, 2002), Kozjak, Smrekovec and Košenjak (Škornik et al., 2006). Tone Wraber was the first to identify another type of acidophytic alpine sward on Jarečica under Mt. Mangart, which was dominated by mat-grass and *Carex curvula*. The latter is very rare in Slovenia, occurring only under Mt. Mangart and on the upper edge of the Kriška Stena rockface to the northwest of Mt. Križ (Wraber & Skoberne, 1989: 88). Wraber named the community *Curvuletum*, emphasising that it was different from the eponymous community in the Central Alps and could be its southeastern-Alpine variety (geographical variant). He also listed its most frequent species (Wraber, 1983: 121, see also Dobravec, 1993: 48). At the beginning of the 21<sup>st</sup> century he aimed to study this community in more detail with Boštjan Surina and analyse their phytosociological relevés, but was stopped by his untimely death in 2010. Without his idea, which he had passed on to the youngest of the authors, and without his relevés, we would not have been able to write this article. He is therefore one of the authors of this article, although he can no longer participate in the analyses. Between 2005 and 2021, we made additional relevés of acidophytic subalpine-alpine swards on Jarečica and elsewhere in the Julian Alps and



**Figure 1:** Distribution of *Nardus stricta* in Slovenia (source: FloVegSi database).

**Slika 1:** Razširjenost volka (*Nardus stricta*) v Sloveniji (vir: podatkovna baza FloVegSi).



**Figure 2:** Approximate localities of the studied subalpine-alpine communities with dominant *Nardus stricta* on the map of Slovenia.

**Slika 2:** Približna nahajališča proučenih subalpinsko-alpinskih združb prevladujočo vrsto *Nardus stricta* na zemljevidu Slovenije.

the Karawanks (Figure 2). We processed them together with the relevés of Tone Wraber (kept at Wraber's library at the Botanical Garden of the University of Ljubljana), using ordination and hierarchical classification methods. Our findings are presented below.

## Methods

Acidophytic subalpine-alpine mat-grass swards in the Julian Alps and partly in the western and eastern Karawanks (Figure 2), were surveyed applying the Central-European phytosociological method (Braun-Blanquet, 1964). We entered 91 relevés into the FloVegSi database (T. Seliškar et al., 2003). The relevés were made between 1983 and 2020, mostly from the end of the June to the first part of August. The plot size was 5 to 30 m<sup>2</sup>, included were also mosses and lichens. The relevés were arranged into tables using hierarchical classification and ordination methods. We transformed the combined cover-abundance values into ordinal scale (1–9) according to van der Maarel (1979). Numerical comparisons were performed using the program package SYN-TAX 2000 (Podani, 2001) and Canoco software (Šmilauer & Lepš, 2014). The relevés were compared by means of “(unweighted) average linkage method” – UPGMA, using Wishart's similarity ratio, and detrended correspondence analysis (DCA). For estimating the general environmental affinities of the relevés, indicator values (co-variables) for vascular plants (L – light, R – soil reaction, T – temperature, N – nutrients, U – humidity, C – continentality) were assigned according to Pignatti (2005) and passively projected into the ordination biplot. The environmental value in a relevé (EV<sub>w</sub>) was estimated as a weighted average of the indicator values of all species present, using their abundances as weights (Lepš & Šmilauer, 2003).

The identified communities were classified into a syn-taxonomic system comparing them to similar communities in Slovenia (Kaligarič & Škornik, 2002, Škornik et al., 2006), Austria (Aichinger, 1933, Ellmauer, 1993, Grabherr, 1993), Friuli Venezia Giulia (Poldini & Oriolo, 1997), the Eastern Alps (Lüth et al., 2011) and the Dolomites (E. & S. Pignatti, 2014, 2016).

The nomenclatural source for the names of vascular plants is the Mala flora Slovenije (Martinčič et al., 2007) and the FloVegSi database. The nomenclatural source for the names of mosses is Hodgetts et al. (2020), and Šupan et al. (2000) for the names of lichens. Mosses in some of the relevés were determined by Andrej Martinčič. Certain lichen taxa were determined only to the rank of genus. For the names of syntaxa we follow Ellmauer (1993), Grabherr (1993), Theurillat (2004), Šilc & Čarni (2012), and Mucina et al. (2016). In the classification of species

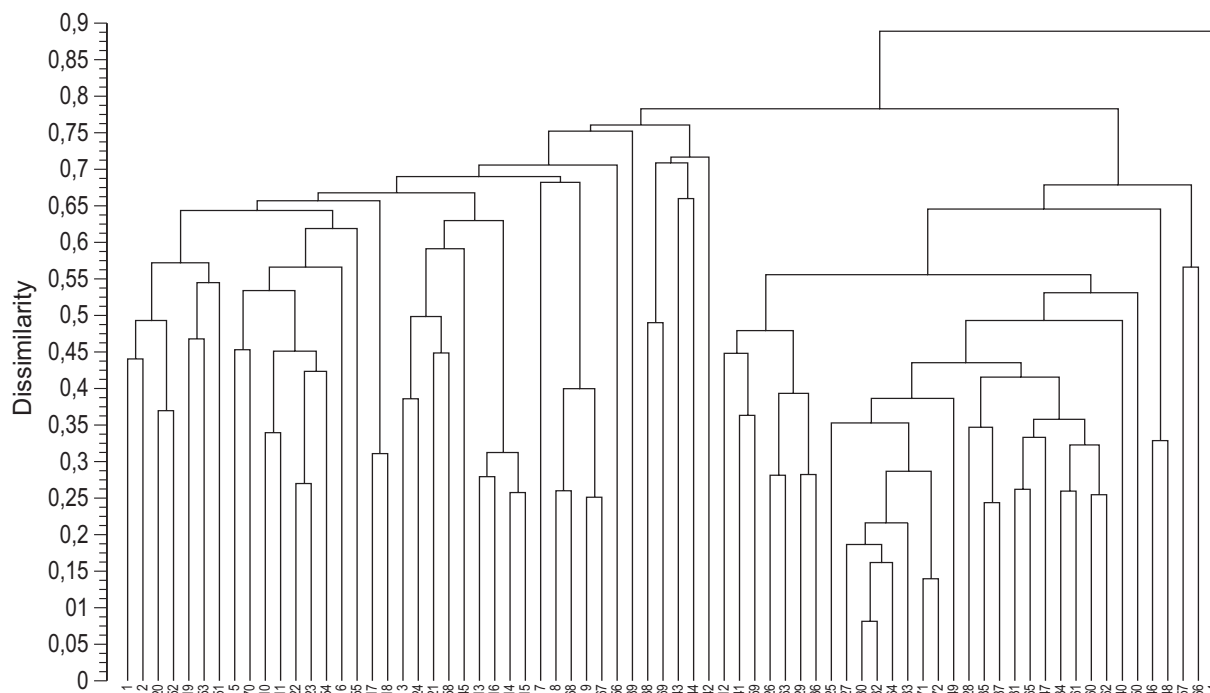
into phytosociological groups (groups of diagnostic species) we mainly refer to the Flora alpina (Aeschmann et al., 2004a,b). The geographical coordinates of relevés were determined according to the Slovenian geographic coordinate system D 48 (zone 5) based on Gauss-Krüger projection and the Bessel ellipsoid using GPS receiver Garmin Vista HCx.

The geological bedrock in the study area is mainly limestone or dolomite limestone, interlayered with marlstone, claystone and chert (Buser, 2009). The studied communities occur mainly on dystic brown soil or dystic ranker (Vidic et al., 2015). The climate is montane, with mean annual precipitation of 2000 mm to 3000 mm (Zupančič, 1998) and mean annual air temperature of +2 °C to -2 °C (Cegnar, 1998). The amount of snowfall and snow cover duration have varied considerably in recent years, with generally milder winters, warmer summers and shorter average periods of snow cover than in the past, as can be observed from long-term annual averages. The growing season usually lasts from June to September (October).

## Results

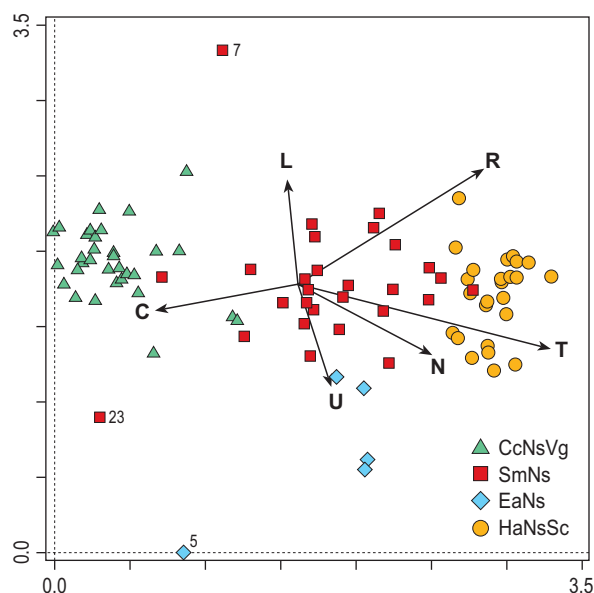
### Hierarchical classification of 72 relevés and ordination of 91 relevés of acidophytic alpine mat-grass swards

Based on the results in Figure 3 we arranged 71 relevés into three tables. Relevé 4 in Figure 3 (species-rich montane sward under Planja above the Učja Valley) was not included in any of the tables and probably does not belong to the association *Nardetum strictae* s. lat. Table 1 comprises relevés clustered on the left side of the dendrogram (Figure 3), except for the relevés that stand out in the middle of the dendrogram. Based on their species composition these relevés were classified into the association *Sieversio-Nardetum strictae* (SmNs in Figure 4). Table 2 comprises relevés from the right side of the dendrogram (Figure 3), with the exception of relevé 4. Most of the relevés were made on Jarečica under Mt. Mangart. In the main, *Nardus stricta* and *Carex curvula* have the highest mean coverage here, so these relevés are classified into the association *Carici curvulae-Nardetum* (CcNsVg in Figure 4). Table 3 comprises relevés that stand out in the middle of the dendrogram (Figure 3); some of them are still assigned to the association *Sieversio-Nardetum* (SmNs in Figure 4), but four relevés are classified into the association *Eriophoro angustifolii-Nardetum* (EaNs in Figure 4). Table 4 comprises relevés from the subalpine belt and secondary sites in the forest belt (*Homogyno alpinae-Nardetum strictae*), which were compared with other relevés using ordination – relevés HaNsSc in Figure 4.



**Figure 3:** Hierarchical classification of acidophytic (subalpine)-alpine swards (n = 72) from the Julian Alps and the Karawanks (UPGMA, 1-similarity ratio). The numbers of relevés in the dendrogram do not correspond to numbers in Tables 1–3.

**Slika 3:** Hierarhična klasifikacija kisloljubnih (subalpinsko)-alpinskih travišč (n = 72) iz Julijskih Alp in Karavank (UPGMA, 1-similarity ratio). Številke popisov v dendrogramu niso iste kot številke popisov v preglednicah 1–3.



**Figure 4:** Detrended correspondence analysis (DCA) of subalpine and alpine acidophytic *Nardus stricta* stands in the Julian Alps and the Karawanks (n = 91) with passively projected indicator values (which account for 17.4% of total variation): L – light, R – soil reaction, T – temperature, N – nutrients, U – humidity, C – continentality. Eigenvalues of the first four DCA axis and explained cumulative variation: 0.5603, 7%; 0.3508, 11.39%; 0.2213, 14.15%; 0.1792, 16.39%. CcNsVg – *Carici curvulae-Nardetum strictae vaccinetosum gaultherioidis*; SmNs – *Sieversio montanae-Nardetum strictae*; EaNs – *Eriophora angustifolii-Nardetum strictae*; HaNsSc – *Homogyno alpinae-Nardetum strictae scorzoneroideosum croceae*.

**Slika 4:** DCA analiza subalpinskih in alpinskih kisloljubnih sestojev z vrsto *Nardus stricta* v Julijskih Alpah in Karavankah (n = 91) s pasivno projiciranimi indikatorskimi vrednostmi (te pojasnijo skupno 17.4 % variabilnosti): L – svetloba, R – reakcija tal, T – temperatura, N – hranila (nutrienti), U – vlažnost, C – kontinentalnost. Lastne vrednosti in pojasnjena kumulativna varianca: 0.5603, 7%; 0.3508, 11.39%; 0.2213, 14.15%; 0.1792, 16.39%. CcNsVg – *Carici curvulae-Nardetum strictae vaccinetosum gaultherioidis*; SmNs – *Sieversio montanae-Nardetum strictae*; EaNs – *Eriophora angustifolii-Nardetum strictae*; HaNsSc – *Homogyno alpinae-Nardetum strictae scorzoneroideosum croceae*.

### Association *Sieversio montanae-Nardetum strictae*

This association comprises subalpine-alpine mat-grass dominated swards (Grabherr, 1993; Lüth et al., 2011). Its diagnostic species are character species of the alliance *Nardion strictae*: *Ajuga pyramidalis*, *Diphasiastrum alpinum*

(*Lycopodium alpinum*), *Pseudorchis albida*, *Campanula barbata*, *Geum montanum* (*Sieversia montana*), *Ranunculus villarsii*, *Agrostis capillaris*, *Carex pallescens*, *Gnaphalium sylvaticum* (*Omalotheca sylvatica*), *Scorzoneroides helvetica* (*Leontodon helveticus*), *Nardus stricta*, *Trifolium repens*, *Veratrum album*. The dominant and constant species in this association include *Carex sempervirens*, *Agrostis*



*rupestris*, *Anthoxanthum odoratum* agg., *Helictotrichon versicolor* (*Avenula versicolor*), *Festuca nigrescens*, *Hieracium lactucella*, *H. pilosella*, *Homogyne alpina*, *Potentilla aurea*, *P. erecta* and *Vaccinium myrtillus*. According to Poldini & Oriolo (1997) its diagnostic species are *Scorzoneroides helvetica* (*Leontodon helveticus*), *Arnica montana*, *Geum montanum*, *Nardus stricta*, *Campanula barbata*, *Pseudorchis albida* and *Pulsatilla alpina* subsp. *austriaca*. These authors distinguish between the altimontane, typical and subalpine forms, and the successional stage overgrown by shrubs. Lüth et al. (2011) distinguish four subassociations: *typicum*, *vaccinietosum*, *trifolietosum pratensis* and *seslerietosum albicantis*. E. Pignatti & S. Pignatti (2014, 2016) use the name *Geo montani-Nardetum* and identify *Nardus stricta*, *Festuca nigrescens* and *Carex pallascens* as character species of the association.

Our stands (Table 1) include most of the listed species with some exceptions, such as *Campanula barbata* and *Gentiana acaulis* (*G. kochiana*). The diagnostic species are *Nardus stricta*, *Festuca nigrescens*, *Luzula expectata*, *Carex sempervirens* and *Geum montanum*. The eastern-Alpine species *Astrantia bavarica* is the geographical differential species. The relevés were made in the Tolmin-Bohinj mountains: under Tolminski Kuk, Dol under Kaluder; in the Triglav Mountains: Kreda, mountain pasture Tosc, Cesar above Konjska Planina, Čisti vrh, Plazijanski Vršac; in the ridge of the Loška Stena: Plešivec, Spodnji Lepoč; in the Mangart group on Mangart Saddle and in Planje; in the Jalovec group: on Sleme; in the Škrlatica group: Na Jezerih (Na Gruntu) above Bivouac II; in the western Karawanks under Stol, Potoški Stol (Figure 5), on Vajnez Saddle in the ridge of Belščica, and on Mt. Peca in the eastern Karawanks, at elevations between 1690 m (Spodnji Lepoč) and 2180 m a.s.l. (Plešivec in the ridge of Loška Stena). In the ordination diagram (Figure 4) the



**Figure 5:** Stand of the association *Sieversio-Nardetum*, Potoški Stol in the western Karawanks. Photo: I. Dakskobler.

**Slika 5:** Sestoj asociacije *Sieversio-Nardetum*, Potoški Stol v zahodnih Karavankah. Foto: I. Dakskobler.

relevé from Plešivec (SmNs23) stands out significantly from other relevés of this association. The reason is the rich moss layer, which was not observed in most of the other relevés. With a few exceptions (under Mt. Mangart) these swards occupy small areas, often in contact with swards on calcareous bedrock or with dwarf pine; most of them are used for grazing of small ruminants. The most common parent material is limestone mixed with marlstone, in places with chert, the soil is dystic. Partly, these swards are being overgrown by dwarf pine (*Rhododhamno-Pinetum mugo*) or by the Siberian juniper community (*Rhododhamno-Juniperetum alpinae*). According to the division of the association *Sieversio-Nardetum* into four subassociations (Lüth et al., 2011) the stands in Table 1 can be classified into the syntaxon *Sieversio montanae-Nardetum strictae vaccinietosum*. Differential species of the subassociation are *Vaccinium gaultherioides*, *V. myrtillus*, *V. vitis-idaea* and *Anthoxanthum nipponicum*.

In terms of ecology, the stands of the association *Sieversio-Nardetum* in the subalpine-alpine belt of the Slovenian Alps take the central position (Figure 4). Compared to physiognomically similar stands of the association *Homogyne-Nardetum* they overgrow sites on more acid and nutrient-poor soils at higher elevations. The pronounced temperature gradient in Figure 4, which is probably related to elevation, indicates that the stands of the association *Sieversio-Nardetum* occur on relatively warmer sites than the stands of the syntaxon *Carici curvulae-Nardetum vaccinietosum*.

### Association *Carici curvulae-Nardetum strictae*

Grabherr (1993) reports three *Carex curvula*-dominated associations for Austria, which could correspond to the stands on Jarečica: *Caricetum curvulae* (character species *Oreochloa disticha*, *Pedicularis kernerii*, *Veronica bellidoides*), *Loiseleurio-Caricetum curvulae* (diagnostic species *Loiseleuria procumbens*, *Vaccinium gaultherioides*, *Empetrum hermaphroditum*, *Vaccinium vitis-idaea*, partly also *Avenella flexuosa*, *Carex sempervirens*, *Vaccinium myrtillus*) and *Carici curvulae-Nardetum* (diagnostic species: *Nardus stricta*, *Avenella flexuosa*, *Carex sempervirens*, *Arnica montana*, *Campanula barbata*, *Gentiana acaulis*).

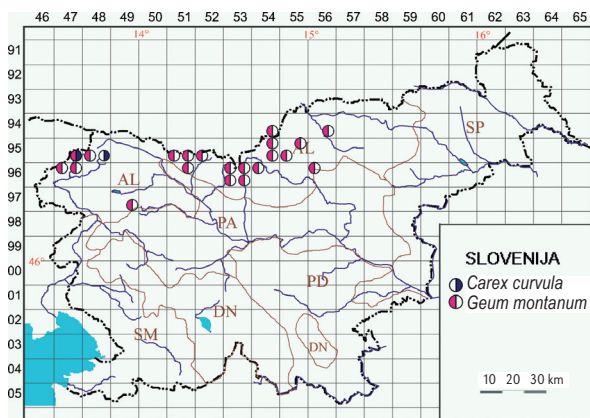
Most of the relevés in Table 2 are from Jarečica, an extensive grassland plain under the southwestern wall of Mt. Mangart (Figure 6), some are from other localities under Mt. Mangart and one relevé is from the ridge of the Loška Stena (Konjsko Sedlo under Bedinji Vrh). *Carex curvula* was found only on Jarečica and on one relevé under Mali Vrh nearby. Its other known locality in Slovenia is north of Mt. Križ (2410 m) and south of height point 2403



**Figure 6:** Jarečice under Mangart, stands of the subassociation *Carici curvulae-Nardetum vacciniotosum gaultherioidis*. Photo: I. Dakskobler.

**Slika 6:** Jarečica pod Mangartom, sestoji subasociacije *Carici curvulae-Nardetum vacciniotosum gaultherioidis*. Foto: I. Dakskobler.

m (Vrh Križa), to the east of the upper fringe of the Kriška Stena rockface, on a small patch of grass on a distinctly karstified terrain at the elevation of 2300 m, in the stand of the association *Potentillo dubiae-Homogynetum discoloris* (T. Wraber, 1969: 81, see also Dobravec, 1993) – Figure 7.



**Figure 7:** Distribution of *Carex curvula* and *Geum montanum* in Slovenia (source: FloVegSi database).

**Slika 7:** Razširjenost vrst *Carex curvula* in *Geum montanum* v Sloveniji (podatkovna baza FloVegSi).

In these relevés *Carex curvula* and *Nardus stricta* characteristically dominate in medium coverage, with either of them absent from only a few of the relevés. This is one of the characteristics of the stands of the association *Carici curvulae-Nardetum*. Some of the diagnostic species of this association, e.g. *Campanula barbata*, *Gentiana acaulis*, *Avenella flexuosa*, are absent from our relevés, as well as certain constant companions like *Phyteuma hemisphaericum*, *Ligusticum mutellina*. On the other hand, several character species of the association *Loiseleurio-Caricetum curvulae*, in particular *Vaccinium gaultherioides* and *V. vitis-idaea*, are frequent and abundant. *Loiseleuria procumbens* is very rare and occurs in only one relevé. Taking into account the dominant species our relevés therefore cannot be classified into this association. This conclusion is further supported by our comparison with the stands of this association in Friuli (Poldini & Oriolo, 1997.), in which *Loiseleuria procumbens* has the constancy value of 100% and medium coverage value of 4, whereas *Nardus stricta* is absent. However, the compared stands have many species in common with our relevés, in addition to *Carex curvula* also *Vaccinium gaultherioides*, *V. myrtillus*, *V. vitis-idaea*, *Scorzoneroides helvetica* (*Leontodon helveticus*), *Hieracium alpinum*, *Helictotrichon versicolor* (*Avena versicolor*), *Juncus trifidus*, *Potentilla aurea*, *Homogyne alpina*, *Solidago virgaurea* subsp. *minuta*, *Anthoxanthum odoratum* agg., *Agrostis rupestris*, *Salix retusa*, *Selaginella selaginoides*, *Rhinanthus glacialis*, *Euphrasia minima*, *E. picta*, *Carex sempervirens*, *Polygonum viviparum*, *Luzula alpinopilosa*, *Cladonia arbuscula*, *Campanula scheuchzeri*, *Homogyne discolor*, *Arnica montana*, *Soldanella pusilla* and *Poa alpina*. In addition, *Nardus stricta* occurs only in two relevés of the association *Caricetum curvulae* from the Dolomites (E. Pignatti & S. Pignatti, 2014, 2016). In terms of their floristic composition the acidophytic alpine swards on Jarečica are therefore transitional between swards from associations *Carici curvulae-Nardetum* and *Loiseleurio-Caricetum curvulae*. This transition is indicated by *Vaccinium gaultherioides*, which has the highest medium coverage there, together with *Nardus stricta* and *Carex curvula*. Based on the dominant species the stands in Table 2 are classified into the new subassociation *Carici curvulae-Nardetum strictae vacciniotosum gaultherioidis* (Figure 8). Its nomenclatural type, *holotypus*, is relevé 13 in Table 2. Differential species of the subassociation are *Vaccinium gaultherioides*, *V. vitis-idaea*, *Helictotrichon versicolor*, *Juncus trifidus*, *Luzula alpina*, *Juncus jacquinii* and *Hieracium alpinum*. The elevation of the localities ranges from 1930 m to 2160 m, the parent material is limestone, mixed with marlstone and chert, the soil is dystric (Figure 9). Expositions are mostly NW, W and SW, with inclinations of 0 to 20°. The stands on Jarečica are closed,





**Figure 8:** Stand of the subassociation *Carici curvulae-Nardetum vacciniotosum gaultherioidis*. Photo: I. Dakskobler.

**Slika 8:** Sestoj subasociacije *Carici curvulae-Nardetum vacciniotosum gaultherioidis*. Foto: I. Dakskobler.



**Figure 9:** Dystric brown soil, stand of the subassociation *Carici curvulae-Nardetum vacciniotosum gaultherioidis*. Photo: I. Dakskobler.

**Slika 9:** Distrična rjava tla v sestoji subasociacije *Carici curvulae-Nardetum vacciniotosum gaultherioidis*. Foto: I. Dakskobler.

transitioning towards stands of other alpine communities (*Ranunculo hybridi-Caricetum sempervirentis*, *Junco jacquinii-Luzuletum alpinopilosae*) only on the fringes, and are occasionally used for sheep grazing. Similarly, other small localities of this subassociation are also grazed. Compared to other *Nardus stricta*-dominated communities in the subalpine and alpine belt of the Slovenian Alps, the stands of the new subassociation (CcNsVg in Figure 4) occurs at the highest elevation, on the most acidic and nutrient-poor soil.

### Association *Eriophoro angustifolii-Nardetum strictae* and special forms of the association *Sieversio-Nardetum strictae*

Table 3 comprises 12 relevés (7, 8, 9, 38, 39, 42, 43, 44, 56, 67, 68 and 69 in Figure 3) which distinct from the stands of the previously described syntaxa. Relevés 1–4 in Table 3, all of them are from Spodnji Lepoč above the Bala valley, can be classified into the association *Eriophoro angustifolii-Nardetum strictae*, because they are a successional stage in the overgrowing of a wetland, a fen that

developed from a former lakelet (EaNs in Figure 4, Figure 10). Relevé 5 (EaN5 in Figure 4) in this table (Prodi under Mt. Mangart) is similar, as it was made in a snow bed and the fringe of a fen community *Eriophoretum scheuchzeri* s. lat., but instead of *Eriophorum angustifo-*



**Figure 10:** Stand of the association *Eriophoro angustifolii-Nardetum*, Spodnji Lepoč above the Bala valley. Photo: I. Dakskobler.

**Slika 10:** Sestoj asociacije *Eriophoro angustifolii-Nardetum*, Spodnji Lepoč nad dolino Bale. Foto: I. Dakskobler.

lium it comprises two other species characteristic of fens: *Calliergonella lindbergii* and *Carex canescens*. As this is the only relevé for this community, relevé 5 can be assigned to the provisional subassociation *Sieversio-Nardetum strictae caricetosum canescentis* nom. prov., as a special successional stage at the contact of fen and acidophytic alpine sward. The results of the DCA analysis (Figure 4) also indicate high soil moisture of the sites compared to other *Nardus stricta*-dominated communities. Indicator values suggest that the soil on these sites is more nutrient-rich, less acidic, while the sites have comparably poorer light conditions. This can be partly attributed to the position of Spodnji Lepoč in a hollow surrounded by higher slopes.

Other relevés are from the mountain pasture Zgornji Viševnik in the Triglav mountains, Visoki Kurji Vrh in the western Karawanks, Breginjski Stol, Nemske Glave and the summit area of Tosc. Despite the absence of *Geum montanum* they are provisionally still classified into the association *Sieversio-Nardetum strictae*, where they belong in terms of the elevation zone. The most distinct relevé is from the summit area of Tosc, 2215 m (the highest elevation of our relevés), which is differentiated by species from alliances *Caricion firmae* and *Arabidion caeruleae* (SmNs7 – Figure 4).

### Acidophytic subalpine mat-grass swards on the Alp Klek and its surroundings (Pokljuka plateau, the Triglav Mountains)

Table 4 comprises relevés of acidophytic mat-grass swards from Alp Klek and its vicinity (HaNsSc in Figure 4). We discussed these swards in past (Dakskobler et al., 2010), when we published only two relevés and classified them into the association *Homogyno alpinae-Nardetum strictae*. Ellmauer (1993: 414–415) classifies into this association acidophytic mat-grass (*Nardus stricta*) swards and pastures in the upper montane and lower subalpine belt, which comprise both species from the alliance *Nardion* (*Caricetalia curvulae*, *Juncetea trifidi*) and species from the alliance *Violion caninae* (*Nardetalia strictae*, *Nardetea strictae*), with character species of the order *Nardetalia* dominating over character species of the order *Caricetalia curvulae*. The potential natural vegetation of these sites is mixed beech-fir-spruce or spruce forest, which indicates that these grasslands are still in the forest zone and developed here after the forest was cleared. The species shared with mat-grass communities from the submontane and lower montane belt (*Polygalo-Nardetum* and others) include *Briza media*, *Carex pallescens*, *C. pilulifera*, *Galium pumilum*, *Hieracium pilosella*, *Veronica officinalis* and other species, and the species shared with acidophytic subalpine swards from the alliance *Nardion* are *Cam-*

*panula scheuchzeri*, *Homogyne alpina*, *Potentilla aurea* and *Poa alpina*. Species such as *Crepis aurea*, *Poa alpina* and *Phleum rhaeticum* link these stands to montane pasture communities from the alliance *Poion alpinae*. According to Poldini & Oriolo (1997) the differential species of the association *Homogyno-Nardetum* are *Poa alpina*, *Campanula scheuchzeri* and *Phleum rhaeticum*. Kaligarič & Škornik (2002) and Škornik et al. (2006) list the following character and differential species of this association: *Solidago virgaurea*, *Veratrum album* subsp. *album*, *Homogyne alpina*, *Hypochoeris uniflora*, *Gentiana pannonica* and *Potentilla aurea*.

Relevés from Klek have many species in common with the stands of the association *Homogyno alpinae-Nardetum strictae* from north-eastern Slovenia and Friuli. We identified *Nardus stricta*, *Festuca nigrescens*, *Gentiana pannonica*, *Luzula expectata* and *Homogyne alpina* as the diagnostic species of the association. *Poa alpina*, *Campanula scheuchzeri* and *Veratrum album* also occur in these stands, whereas *Hypochoeris uniflora* is absent. *Scorzonerooides crocea*, *Carex montana*, *Soldanella alpina*, *Salix retusa* and *Homogyne discolor* (differential species of the subassociation) discriminate these stands against the stands from north-eastern Slovenia and Friuli, to a lesser extent also *Centaurea nervosa* and *Diphasiastrum alpinum* as well as certain character species of the class *Elyno-Seslerietea* (*Polygonum viviparum*, *Thymus praecox* subsp. *polytrichus*, *Polygala alpestris*, *Selaginella selaginoides* and others). The swards are mostly secondary, still in the subalpine spruce and spruce-larch forest zone. They have a unique ecology, with most of the relevés made in a frost hollow, on dolomite-limestone bedrock with luvisol (leached soil), where a small area features a mosaic of diverse subalpine communities (Dakskobler et al., 2010). The species composition is subject to active grazing, in recent years mainly by horses. For now we confirm the original classification and assign all relevés with the exception of relevé 1 in Table 4 (HaNsSc01 in Figure 4) into the association *Homogyno alpinae-Nardetum strictae* and new subassociation *scorzonerooidetosum croceae* subass. nov. hoc loco. Its nomenclatural type, *holotypus*, is relevé 5 in Table 4. Differential species of the new subassociation are *Scorzonerooides crocea*, *Carex montana*, *Soldanella alpina*, *Salix retusa* and *Homogyne discolor*. The elevation of the localities ranges from 1500 m to 1535 m, the parent material is limestone or dolomite limestone, in places mixed with marlstone and chert (Figure 11). Compared to other *Nardus stricta*-dominated communities in the subalpine-alpine belt these stands occur on relatively nutrient-rich and less acidic soils (Figure 4). The soil type is mainly leached brown soil (luvisol). Expositions are mostly NW, W and SW, but also NE and SE, with inclinations of 0 to





**Figure 11:** Stand of the subassociation *Homogyno alpinae-Nardetum scorzoneroidetosum croceae*, alp Klek (Planina Klek) on the Pokljuka plateau. Photo: I. Dakskobler.

**Slika 11:** Sestoj subasociacije *Homogyno alpinae-Nardetum scorzoneroidetosum croceae*, Planina Klek na Pokljuki. Foto: I. Dakskobler.

10°. In view of the site specifics, they could also be classified into the new association *Scorzoneroido croceae-Nardetum strictae*, but this requires a more detailed comparison.

### Classification of the researched communities into the syntaxonomical system

- Juncetea trifidi* Daniëls 1994  
*Caricetalia curvulae* Br.-Bl. in Br.-Bl. et Jenny 1926  
*Caricion curvulae* Br.-Bl. 1925  
*Carici curvulae-Nardetum strictae* Oberd. 1959  
*vaccinietosum gaultherioidis* subass. nov. hoc loco  
*Festucetalia spadiceae* Barbero 1970  
*Nardion strictae* Br.-Bl. 1926  
*Sieversio montanae-Nardetum strictae* Lüdi 1948  
*vaccinietosum* Hartl 1963  
*caricetosum canescentis* nom. prov.  
*Nardetea strictae* Rivas Goday et Borja Carbonell in Rivas Goday et Mayor López 1966  
*Nardetalia strictae* Preising 1950  
*Nardo-Juncion squarrosi* (Oberd. 1957) Passarge 1964  
*Eriophoro angustifolii-Nardetum strictae* Ellmauer 1993  
*Nardo-Agrostion tenuis* Sillinger 1933  
*Homogyno alpinae-Nardetum strictae* Mráz 1956  
*scorzoneroidetosum croceae* subass. nov. hoc loco

Other syntaxa mentioned in this article:

- Caricetum curvulae* Rübel 1911  
*Loiseleurio-Caricetum curvulae* Pitschmann et al. 1980  
*Junco jacquinii-Luzuletum alpinopilosae* Dakskobler et Poldini 2019

- Ranunculo hybridi-Caricetum sempervirentis* Poldini et Feoli Chiapella in Feoli Chiapella et Poldini 1993  
*Rhodothamno-Juniperetum alpinae* Poldini, Oriolo et Francescato 2004  
*Rhodothamno-Pinetum mugo* Zupančič et Žagar in Zupančič 2015  
*Potentillo dubiae-Homogynetum discoloris* Aichinger 1933

## Discussion and conclusions

Mat-grass (*Nardus stricta*) swards may be secondary, on previously forested sites, or primary, above the timber line (upper forest line) and in frost hollows. Both types are very similar in appearance. They are distinctly edaphic communities and consequently floristically homogeneous. The differences in their species composition are insignificant, because many acidophytic species have a large vertical distribution range. This does not apply to *Carex curvula* subsp. *curvula*, a south-European montane species of acidic alpine grasslands, which in Slovenia occurs only on Jarečica under Mt. Mangart and to the northwest of Mt. Križ (east of the upper fringe of the Kriška Stena rockface) in the Škrlatica mountains. Due to their abundant presence on the extensive grassland plain of Jarečica under the northwestern rockface of Mt. Mangart the mat-grass stands there (classified into the syntaxon *Carici curvulae-Nardetum strictae vaccinietosum gaultherioidis*) have a very distinct appearance compared to the stands of another alpine mat-grass community, which is named after *Geum montanum* – *Sieversio-Nardetum*. *Geum montanum* is quite rare in Slovenia (Figure 7), especially in the Julian Alps (the locality in quadrant 9749/4, Črna Prst, is historic, dating from the 19<sup>th</sup> century (Engelthaler, 1874), and has no recent confirmations); most of its localities are in the alpine belt, only a few occur below the alpine belt. Also frequent in the stands of both associations is *Homogyne alpina*, which gave its name to the mat-grass community in the upper montane and lower subalpine belt, still in the forest zone – *Homogyno alpinae-Nardetum*. However, denomination under *Homogyne alpina* does not sufficiently describe its vertical distribution range and the overall species composition is occasionally quite similar to the species composition of the stands of the association *Sieversio-Nardetum*. The differential species are mainly species of cultivated and dry grasslands on calcareous and neutral bedrock, i.e. companion species that are much more common in the altimontane belt than in the alpine belt. In special ecological conditions, in frost hollows, the acidophytic mat-grass swards occur also on small areas with pure calcareous bedrock, if the soil is leached (see Figure 4; these stands have the least calcifuge



flora). Their species composition features a number of character species of contact communities in the vicinity, and certain species of the alpine belt. One such example are the stands of the new subassociation *Homogyno alpinae-Nardetum scorzoneroideosum croceae* on mountain pasture Klek on the Pokljuka plateau.

In addition to natural factors and successional processes grazing of small ruminants and occasionally horses is another ecological factor that could, if the density of animals is excessive or if they graze on small areas for too long, lead to degradation and dominance of ruderal species. So far, the surveyed pastures have avoided this process. They comprise many species of conservation importance (Anon., 2002, 2004): protected orchids (*Pseudorchis albida*, *Coeloglossum viride*, *Gymnadenia conopsea*), club mosses (*Lycopodium annotinum*, *Huperzia selago*, *Diphasiastrum alpinum*) as well as *Arnica montana* and *Gentiana pannonica*. Red-listed rare or endangered species include *Carex curvula*, *Juncus trifidus*, *Luzula alpinopilosa*, *Eriophorum angustifolium* and *Scorzoneroideos crocea*.

## Povzetek

### Fitocenološka oznaka kisloljubnih alpskih travnišč v Julijskih Alpah in Karavankah

Travišča z volkom (*Nardus stricta*) so si po zunanem videzu precej podobna, ne glede na njihov izvor. To so izrazito edafske združbe, ki so zato floristično precej homogene. Lahko so drugotne, še na rastiščih nekdanjega gozda, ali primarne, nad zgornjo gozdno mejo ali v mrzasiščih. Tudi v vrstni sestavi med njimi niso tako velike razlike, saj ima precej kisloljubnih vrst velik višinski razpon uspevanja. To ne velja za upognjeni šaš (*Carex curvula* subsp. *curvula*), južnoevropsko montansko vrsto zakisanih alpskih travnišč, ki v Sloveniji uspeva le na Jarečici pod Mangartom in severno od gore Križ (vzhodno od zgornjega roba Kriške stene) v pogorju Škrlatic. Zaradi njegovega obilnega pojavljanja na obsežni travnati planjavi Jarečica pod severozahodno steno Mangarta so tamkajšnji sestoji volka, uvrščamo jih v subasociacijo *Carici curvulae-Nardetum strictae vacciniotosum gaultherioidis*, tudi po videzu prepoznavno drugačni od sestojev druge alpske združbe volka, ki se imenuje po gorski sreteni (*Geum montanum*) – *Sieversio-Nardetum*. Gorska sretena je v Sloveniji precej redka (slika 7), kar še posebej velja za Julijske Alpe (nahajališče v kvadrantu 9749/4, Črna prst je zgodovinsko, iz 19. stoletja (Engelthaler, 1874), novejših potrditev nima) in ima večino nahajališč v alpskem pasu, posamezna tudi nižje. V sestojih obeh naštetih asociacij pogosto uspeva tudi alpski planinšček (*Homogyne alpina*), po katerem se imenuje združba volka v zgornjem montanskem in spodnjem subalpskem pasu, torej še v pasu gozda – *Homogyno*

*alpinae-Nardetum*. Imenovanje po tej vrsti ne označuje dobro višinskega pasu njenega uspevanja in tudi celotna vrstna sestava ponekod ni zelo različna od vrstne sestave sestojev asociacije *Sieversio-Nardetum*. Razlikovalne so predvsem vrste gojenih in suhih travnišč na karbonatni in nevtralni podlagi, torej spremljevalne vrste, ki jih je v alpskem pasu precej več kot v alpskem pasu. V posebnih ekoloških razmerah, mrzasiščih, se kisloljubna travnišča na majhnih površinah pojavljajo tudi na čisti karbonatni podlagi, v primeru, da so tla izprana (glej sliko 4, ti sestoji imajo najmanj kalcifugno floro). V njihovi vrstni sestavi je precej značilnic stičnih okoliških združb in nekaterih vrst alpskega pasu. Tak primer so sestoji nove subasociacije *Homogyno alpinae-Nardetum scorzoneroideosum croceae* na pl. Klek na Pokljuki.

Poleg naravnih dejavnikov in sukcesijskih procesov je pomemben ekološki dejavnik na rastiščih proučenih združb paša drobnice in deloma tudi konj, ki lahko, če je gostota živali prevelika ali se na majhnih površinah zadržujejo predolgo, povzroči degradacijo in prevlado ruderalnih vrst. Za zdaj so pašniki, ki smo jih popisali, pred tem večinoma obvarovani. V njih raste precej narovarstveno pomembnih vrst (Anon., 2002, 2004): zavarovane kukavičevke (*Pseudorchis albida*, *Coeloglossum viride*, *Gymnadenia conopsea*), lisičjakovke (*Lycopodium annotinum*, *Huperzia selago*, *Diphasiastrum alpinum*) ter *Arnica montana* in *Gentiana pannonica*. Redke ali ogrožene vrste, ki so na rdečem seznamu, so *Carex curvula*, *Juncus trifidus*, *Luzula alpinopilosa*, *Eriophorum angustifolium*, *Scorzoneroideos crocea*.

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Boštjan Surina  <https://orcid.org/0000-0002-2635-315X>

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**Table 1 (Tabela 1):** *Sieversio-Nardetum strictae vaccinietosum*

Successive number of relevé (Zaporedna številka popisa)	1	2	3	4	5	6	7	8	9
Database number of relevé (Delovna številka popisa)	211799	213047	226376	274164	221059	274172	272334	213324	286940
Author of the relevé (Avtor popisa)	ID	ID	IDBZ	IDBABZ	ID	IDBABZ	IDBABZ	ID	ID
Elevation in m (Nadmorska višina v m)	1860	1880	2010	2165	1680	2000	2110	1790	1805
Aspect (Lega)	0	0	W	SEE	SE	SW	SE	NW	0
Slope in degrees (Nagib v stopinjah)	0	0	10	10	5	10	5	15	2
Parent material (Matična podlaga)	LM	LM	L	LC	LM	LC	LM	M	LM
Soil (Tla)	Dy	Dy	Dy	DyRa	Dy	DyRa	Dy	Dy	Dy
Stoniness in % (Kamnitost v %)	0	0	0	0	0	0	5	0	0
Cover of shrub layer in % (Zastiranje grmovne plasti v %):	0	0	0	0	0	0	0	1	10
Cover of herb layer in % (Zastiranje zeliščne plasti v %):	100	100	100	95	100	95	95	100	90
Cover of moss layer in % (Zastiranje mahovne plasti v %):	0	0	0	0	0	0	0	0	0
Number of species (Število vrst)	24	28	25	16	20	11	16	27	26
Relevé area (Velikost popisne ploskve)	m <sup>2</sup>	20	20	10	20	10	20	10	25
Date of taking relevé (Datum popisa)	7/10/2006	7/10/2006	7/30/2009	7/18/2018	7/11/2008	7/18/2018	8/21/2018	8/5/2005	7/28/2021
Locality (Nahajališče)	Tolminski Kuk	Tolminski Kuk	Kreda	Stol	Dol pod Kaludrom	Potoški Stol	Na jezerih-na Gruntu	Čisti vrh	Plazijanski Vrašac
Mountain range (Pogorje)	JA	JA	JA	WK	JA	WK	JA	JA	JA
Quadrant (Kvadrant)	9748/2	9748/2	9648/4	9551/3	9648/3	9550/4	9549/3	9648/2	9648/2
Coordinate GK Y (D-48)	m	404686	404797	408815	437131	401156	435275	411013	404229
Coordinate GK X (D-48)	m	5123760	5124252	5132039	5143536	5129500	5143990	5143850	5135432
<b>Diagnostic species of the association (Diagnostične vrste asociacije)</b>									
NS <i>Nardus stricta</i>	E1	3	5	4	4	4	4	5	3
NS <i>Festuca nigrescens</i>	E1	2	1	2	1	+	1	.	2
NS <i>Luzula exspectata</i>	E1	+	+	1	+	1	+	.	.
ES <i>Carex sempervirens</i>	E1	1	+	1	+	+	.	.	.
JT <i>Geum montanum</i>	E1	.	.	.	.	.	.	.	.
<b>Differential species of the subassociation (Razlikovalnice subasociacije)</b>									
VP <i>Vaccinium myrtillus</i>	E1	.	1	+	1	.	.	.	3
JT <i>Anthoxanthum nipponicum</i>	E1	.	.	.	.	1	.	1	3



Successive number of relevé (Zaporedna številka popisa)		1	2	3	4	5	6	7	8	9
LV	<i>Vaccinium gaultherioides</i>	E1	.	.	.	+	.	.	2	2
VP	<i>Vaccinium vitis-idaea</i>	E1	.	.	.	.	.	.	2	1
NS	<b>Nardion strictae</b>									
	<i>Hieracium lactucella</i>	E1	.	+	.	.	.	.	.	.
	<i>Potentilla erecta</i>	E1	1	1	.	.	+	.	.	.
	<i>Antennaria dioica</i>	E1	.	.	.	.	.	.	.	.
	<i>Arnica montana</i>	E1	.	.	.	.	.	.	.	+
	<i>Coeloglossum viride</i>	E1	.	+	+	.	.	.	.	.
	<i>Gentiana pannonica</i>	E1	.	.	.	.	.	.	.	+
	<i>Euphrasia rostkoviana</i> subsp. <i>montana</i>	E1	.	.	.	.	.	.	.	.
	<i>Agrostis capillaris</i>	E1	.	.	.	.	.	.	.	.
	<i>Galium pumilum</i>	E1	.	.	.	.	+	.	.	.
	<i>Alchemilla flabellata</i>	E1	.	.	.	.	.	.	.	.
	<i>Carex pilulifera</i>	E1	.	.	.	.	.	.	.	.
	<i>Pseudorchis albida</i>	E1	.	.	.	.	.	.	+	.
	<i>Carex pallescens</i>	E1	.	.	.	.	.	.	.	.
	<i>Meum athamanticum</i>	E1	.	.	.	.	.	.	.	.
	<i>Luzula alpina</i>	E1	.	.	.	.	.	.	.	.
JT	<b>Juncetea trifidi, Festucion variae</b>									
	<i>Potentilla aurea</i>	E1	1	+	2	1	1	2	+	1
	<i>Campanula scheuchzeri</i>	E1	.	.	1	1	.	.	+	1
	<i>Scorzoneroides helvetica</i>	E1	.	.	.	.	2	1	1	.
	<i>Solidago virgaurea</i> subsp. <i>minuta</i>	E1	.	+	.	.	.	.	.	+
	<i>Helictotrichon versicolor</i>	E1	.	.	.	.	.	.	.	.
	<i>Luzula spicata</i>	E1	.	.	+	1	.	.	.	.
	<i>Euphrasia minima</i>	E1	.	.	+	.	.	.	+	.
	<i>Botrychium lunaria</i>	E1	.	.	.	.	.	.	.	.
	<i>Juncus trifidus</i>	E1	.	.	.	.	.	.	.	.
	<i>Centaurea nervosa</i>	E1	.	.	.	.	.	.	.	.
	<i>Hieracium alpinum</i>	E1	.	.	.	.	.	.	.	.
	<i>Juncus jacquinii</i>	E1	.	.	.	.	.	.	.	.
	<i>Agrostis rupestris</i>	E1	.	.	.	.	.	.	.	.
LV	<b>Loiseleurio-Vaccinietea</b>									
	<i>Juniperus alpina</i>	E1	.	.	.	.	.	.	+	.
	<i>Rhododendron ferrugineum</i>	E1	.	.	.	.	.	.	1	.
	<i>Empetrum hermaphroditum</i>	E1	.	.	.	.	.	.	+	.
VP	<b>Vaccinio-Piceetea</b>									
	<i>Homogyne alpina</i>	E1	.	+	.	.	.	.	1	1
	<i>Luzula sylvatica</i>	E1	.	.	.	.	.	.	1	1
	<i>Aposeris foetida</i>	E1	.	.	.	.	1	.	.	+
	<i>Luzula luzuloides</i> subsp. <i>rubella</i>	E1	.	.	.	.	.	.	.	.
	<i>Huperzia selago</i>	E1	.	.	.	.	.	.	+	.
	<i>Lycopodium annotinum</i>	E1	.	.	.	.	.	.	+	.
	<i>Calamagrostis villosa</i>	E1	.	.	.	.	.	.	.	1
	<i>Pyrola minor</i>	E1	.	.	.	.	.	.	.	.
	<i>Polytrichum commune</i>	E0	.	.	.	.	.	.	.	.
OE	<b>Oxytropido-Elynon</b>									
	<i>Salix serpyllifolia</i>	E1	.	.	.	.	.	.	.	.
Cfir	<b>Caricion firmae</b>									
	<i>Dryas octopetala</i>	E1	.	.	.	.	.	.	.	+





Successive number of relevé (Zaporedna številka popisa)		1	2	3	4	5	6	7	8	9
	<i>Phyteuma sieberi</i>	E1	.	+	.	.	.	.	.	.
	<i>Helianthemum alpestre</i>	E1	.	.	.	.	.	.	.	.
	<i>Silene acaulis</i>	E1	.	.	.	.	.	.	.	.
Cfer	<b><i>Caricion ferrugineae</i></b>									
	<i>Carex ferruginea</i>	E1	.	.	.	.	+	.	.	.
	<i>Hedysarum hedysaroides</i>	E1	.	.	.	.	.	.	.	.
	<i>Knautia longifolia</i>	E1	.	.	.	.	.	.	.	.
CA	<b><i>Caricion austroalpinae</i></b>									
	<i>Senecio abrotanifolius</i>	E1	.	.	.	.	.	.	.	.
	<i>Koeleria eriostachya</i>	E1	+	.	.	.	+	.	.	.
	<i>Laserpitium peucedanoides</i>	E1	.	+	.	.	.	.	.	.
	<i>Pedicularis elongata</i> subsp. <i>julica</i>	E1	.	.	.	.	.	.	.	.
	<i>Heracleum austriacum</i> subsp. <i>stifolium</i>	E1	.	.	.	.	.	.	.	.
ES	<b><i>Elyno-Seslerietea</i></b>									
	<i>Polygonum viviparum</i>	E1	1	1	+	1	.	.	1	+
	<i>Astrantia bavarica</i>	E1	+	+	.	.	.	.	+	+
	<i>Thymus praecox</i> subsp. <i>polytrichus</i>	E1	+	.	+	+	.	.	+	.
	<i>Galium anisophyllum</i>	E1	+	+	+	.	.	.	+	+
	<i>Thesium alpinum</i>	E1	.	.	.	.	.	.	.	.
	<i>Lotus alpinus</i>	E1	1	.	.	.	+	.	.	.
	<i>Agrostis alpina</i>	E1	.	.	+	.	.	.	.	.
	<i>Nigritella rhellicani</i>	E1	.	.	+	.	.	.	.	.
	<i>Pulsatilla alpina</i> subsp. <i>austroalpina</i>	E1	.	.	.	.	.	.	.	.
	<i>Helianthemum nummularium</i> subsp. <i>grandiflorum</i>	E1	.	.	+	.	.	.	.	+
	<i>Polygala alpestris</i>	E1	.	.	.	.	+	.	.	.
	<i>Alchemilla alpigena</i>	E1	.	.	.	.	+	.	+	.
	<i>Selaginella selaginoides</i>	E1	.	.	.	.	.	1	.	.
	<i>Cerastium strictum</i>	E1	.	.	.	1	.	1	.	.
	<i>Gentianella anisodonta</i>	E1	.	.	.	.	.	+	.	.
	<i>Bartsia alpina</i>	E1	.	.	.	.	.	.	.	+
	<i>Phyteuma orbiculare</i>	E1	.	.	.	.	.	.	.	.
	<i>Ranunculus montanus</i>	E1	.	.	.	.	.	.	.	.
	<i>Traunsteinera globosa</i>	E1	.	.	.	.	.	.	.	.
	<i>Sesleria caerulea</i>	E1	+	.	.	.	.	.	.	.
	<i>Ranunculus carinthiacus</i>	E1	r	.	.	.	.	.	.	.
	<i>Nigritella rubra</i>	E1	r	.	.	.	.	.	.	.
	<i>Erigeron glabratus</i>	E1	.	.	+	.	.	.	.	.
	<i>Alchemilla exigua</i>	E1	.	.	.	.	.	+	.	.
	<i>Juncus monanthos</i>	E1	.	.	.	.	.	.	+	.
	<i>Potentilla crantzii</i>	E1	.	.	.	.	.	.	.	+
	<i>Globularia nudicaulis</i>	E1	.	.	.	.	.	.	.	+
	<i>Nigritella widderi</i>	E1	.	.	.	.	.	.	.	.
	<i>Anthyllis vulneraria</i> subsp. <i>alpestris</i>	E1	.	.	.	.	.	.	.	.
	<i>Leucanthemum heterophyllum</i>	E1	.	.	.	.	.	.	.	.
	<i>Salix alpina</i>	E1	.	.	.	.	.	.	.	.
	<i>Pedicularis verticillata</i>	E1	.	.	.	.	.	.	.	.
SH	<b><i>Salicetea herbaceae</i></b>									
	<i>Soldanella pusilla</i>	E1	.	.	.	.	.	+	.	.
AC	<b><i>Arabidetalia caeruleae</i></b>									
	<i>Soldanella alpina</i>	E1	+	+	+	.	.	.	.	.



Successive number of relevé (Zaporedna številka popisa)		1	2	3	4	5	6	7	8	9
	<i>Salix retusa</i>	E1	+	+	.	.	.	+	.	.
	<i>Homogyne discolor</i>	E1	+	+	.	1	.	1	.	+
	<i>Carex atrata</i>	E1	.	+	.	.	.	.	.	.
	<i>Trifolium pallelescens</i>	E1	.	.	.	.	.	.	+	.
	<i>Taraxacum</i> sect. <i>Alpina</i>	E1	.	.	.	.	+	.	.	.
	<i>Potentilla brauneana</i>	E1	.	.	.	.	.	.	.	.
TR	<b><i>Thlaspietea rotundifolii</i></b>									
	<i>Heliosperma alpestre</i>	E1	.	.	+	.	.	.	1	.
	<i>Biscutella laevigata</i>	E1	+	+	.	.	.	.	.	.
	<i>Hieracium bifidum</i>	E1	.	.	.	.	.	.	.	+
	<i>Rhodiola rosea</i>	E1	.	.	.	.	.	.	.	.
	<i>Cirsium spinosissimum</i>	E1	.	.	.	.	.	.	.	.
CD	<b><i>Caricetalia davalliana</i>, <i>Scheuchzerio-Caricetea fuscae</i></b>									
	<i>Parnassia palustris</i>	E1	.	+	.	.	.	.	.	.
	<i>Carex capillaris</i>	E1	.	.	.	.	.	+	.	.
MC	<b><i>Montio-Cardaminetea</i></b>									
	<i>Ditrichum flexicaule</i>	E0	.	.	.	.	.	.	.	.
MuA	<b><i>Mulgedio-Aconitetea</i>, <i>Betulo-Alnetea</i></b>									
	<i>Veratrum album</i> (inc. <i>V. lobelianum</i> )	E1	.	.	.	.	.	.	.	.
	<i>Hypericum maculatum</i>	E1	.	.	.	.	.	.	.	.
	<i>Allium victorialis</i>	E1	.	.	.	.	.	.	.	.
	<i>Peucedanum ostruthium</i>	E1	.	.	.	.	.	.	.	.
	<i>Sorbus chamaemespilus</i>	E2a	.	.	.	.	.	.	.	+
	<i>Rumex alpinus</i>	E1	.	.	.	.	.	.	.	.
	<i>Viola biflora</i>	E1	.	.	.	.	.	.	.	.
	<i>Serratula tinctoria</i> subsp. <i>monticola</i>	E1	.	.	.	.	.	.	.	.
	<i>Phyteuma ovatum</i>	E1	.	.	.	.	.	.	.	.
	<i>Ranunculus platanifolius</i>	E1	.	.	.	.	.	.	.	.
	<i>Chaerophyllum hirsutum</i>	E1	.	.	.	.	.	.	.	.
FB	<b><i>Festuco-Brometea</i>, <i>Trifolio-Geranietea</i></b>									
	<i>Hieracium pilosella</i>	E1	.	.	.	.	.	.	.	.
	<i>Silene nutans</i>	E1	.	.	.	.	.	.	.	.
	<i>Carlina acaulis</i>	E1	.	.	.	.	.	.	.	.
	<i>Gymnadenia conopsea</i>	E1	.	.	.	.	.	.	.	.
	<i>Koeleria pyramidata</i>	E1	.	.	.	.	.	.	.	.
PaT	<b><i>Poo alpinae-Trisetetalia</i></b>									
	<i>Poa alpina</i>	E1	1	1	1	1	1	1	.	.
	<i>Crocus albiflorus</i>	E1	.	.	.	.	+	.	.	.
	<i>Phleum rhaeticum</i>	E1	+	+	.	.	+	.	+	.
	<i>Crepis aurea</i>	E1	1	.	1	+	.	.	.	.
	<i>Ranunculus nemorosus</i>	E1	.	.	.	.	.	.	.	.
	<i>Cerastium fontanum</i>	E1	.	.	+	.	.	.	.	.
	<i>Trollius europaeus</i>	E1	.	.	.	.	.	.	.	.
	<i>Poa supina</i>	E1	.	.	.	.	.	.	.	.
	<i>Euphrasia picta</i>	E1	.	.	.	.	.	.	.	.
MA	<b><i>Molinio-Arrhenatheretea</i></b>									
	<i>Leontodon hispidus</i>	E1	1	.	1	1	.	+	.	1
	<i>Deschampsia cespitosa</i>	E1	.	+	.	.	+	.	.	.
	<i>Trifolium pratense</i>	E1	.	.	1	.	.	.	.	.
	<i>Trifolium repens</i>	E1	.	.	1	.	.	.	.	.

10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	Pr.	Fr.	
.	.	.	.	+	.	+	.	.	+	+	.	.	.	.	.	.	.	7	26	
.	.	.	.	.	+	.	.	.	.	+	.	.	.	.	.	.	.	7	26	
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+	+	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	8	30	
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+	+	.	.	.	.	+	.	.	+	.	.	.	.	.	.	.	.	6	22	
.	.	.	.	.	+	.	1	+	.	.	.	.	+	.	.	.	+	6	22	
.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	2	7	



Successive number of relevé (Zaporedna številka popisa)		1	2	3	4	5	6	7	8	9
	<i>Luzula campestris</i>	E1	.	.	.	.	.	.	.	.
	<i>Veronica chamaedrys</i>	E1	.	.	.	.	.	.	.	.
	<i>Stellaria graminea</i>	E1	.	.	.	.	.	.	.	.
FS	<b>Fagetalia sylvaticae, Quercus-Fagetea</b>									
	<i>Phyteuma zahlbruckneri</i>	E1	.	+	.	.	.	.	.	.
	<i>Hieracium lachenalii</i>	E1	.	.	.	.	.	.	.	+
	<i>Daphne mezereum</i>	E1	.	.	.	.	.	.	+	.
	<i>Anemone nemorosa</i>	E1	.	.	.	.	.	.	.	.
	<i>Knautia drymeia</i>	E1	.	.	.	.	.	.	.	.
	<i>Cardamine enneaphyllos</i>	E1	.	.	.	.	.	.	.	.
	<i>Veronica officinalis</i>	E1	.	.	.	.	.	.	.	.
EP	<b>Rhododendro hirsuti-Ericetalia carnea, Erico-Pinetea</b>									
	<i>Carex ornithopoda</i>	E1	1	.	.	.	+	.	.	.
	<i>Erica carnea</i>	E1	.	.	.	.	.	.	.	+
	<i>Rhododendron hirsutum</i>	E1	.	.	.	.	.	.	+	.
	<i>Pinus mugo</i>	E1	.	.	.	.	.	.	.	.
	<i>Chamaecytisus hirsutus</i>	E1	.	.	.	.	.	.	.	.
O	<b>Other species (Druge vrste)</b>									
	<i>Alchemilla</i> sp.	E1	.	.	.	.	.	+	.	.
	<i>Festuca</i> sp.	E1	.	+	.	.	.	.	.	.
	<i>Taraxacum</i> sp.	E1	.	.	.	.	.	+	.	.
ML	<b>Mosses and lichens (Mahovi in lišaji)</b>									
	<i>Cetraria islandica</i>	E0	.	.	.	.	.	.	.	.
	<i>Polytrichum</i> sp.	E0	.	+	.	.	.	.	.	.
	<i>Rhytidiadelphus squarrosus</i>	E0	.	.	.	.	.	.	.	.
	<i>Polytrichum piliferum</i> *	E0	.	.	.	.	.	.	.	.
	<i>Polytrichum juniperinum</i> *	E0	.	.	.	.	.	.	.	.
	<i>Distichium capillaceum</i> *	E0	.	.	.	.	.	.	.	.
	<i>Brachythecium glareosum</i> *	E0	.	.	.	.	.	.	.	.
	<i>Hypnum cupressiforme</i> *	E0	.	.	.	.	.	.	.	.
	<i>Lescuraea saxicola</i> *	E0	.	.	.	.	.	.	.	.
	<i>Myurella julacea</i> *	E0	.	.	.	.	.	.	.	.
	<i>Plagiochila porelloides</i> *	E0	.	.	.	.	.	.	.	.
	<i>Syntrichia ruralis</i> *	E0	.	.	.	.	.	.	.	.
	<i>Desmatodon latifolius</i> *	E0	.	.	.	.	.	.	.	.

Legend – Legenda

ID	Igor Dakskobler	Ch	Chert – Roženec
BV	Branko Vreš	Dy	Dystric brown soil – Distrična rjava tla
BA	Brane Anderle	DyRa	Dystric ranker – Distrični ranker
BZ	Branko Zupan	JA	Julian Alps – Julijske Alpe
SB	Sanja Behrič	WK	Western Karawanks – Zahodne Karavanke
AS	Andrej Seliškar	EK	Eastern Karawanks – Vzhodne Karavanke
L	Limestone – Apnenec	Pr.	Presence (number of relevés in which the species is presented) – število popisov, v katerih se pojavlja vrsta
M	Marlstone – Laporovec	Fr.	Frequency in % – frekvenca v %
Cl	Claystone – Glinavec	*	det. Andrej Martinčič
D	Dolomite – Dolomit		



**Table 2 (Tabela 2):** *Carici curvulae-Nardetum strictae vaccinetosum gaultherioidis*

Successive number of relevé (Zaporedna številka popisa)	1	2	3	4	5	6	7	8	9	10
Database number of relevé (Delovna številka popisa)	249427	249429	249432	249434	281933	249435	286952	286953	270600	249430
Author of the relevé (Avtor popisa)	ID	ID	ID	ID	IDBV	ID	ID	ID	TWAP	ID
Elevation in m (Nadmorska višina v m)	2080	2090	2110	2120	2090	2130	2070	2120	2080	2090
Aspect (Lega)	NWW	NWW	NW	NW	W	NW	NW	W	W	NW
Slope in degrees (Nagib v stopinjah)	10	10	10	10	20	5	10	20	10	10
Parent material (Matična podlaga)	LMCh	LMCh	LMCh	LMCh	LM	LMCh	LM	LM	LMCh	LMCh
Soil (Tla)	Dy	Dy	Dy	Dy	Dy	Dy	Dy	Dy	Dy	Dy
Stoniness in % (Kamnitost v %)	0	0	0	0	0	0	0	0	0	0
Cover of herb layer in % (Zastiranje zeliščne plasti v %):	90	90	100	90	98	95	100	98	100	95
Cover of moss layer in % (Zastiranje mahovne plasti v %):	10	10	2	10	5	5	2	10	1	10
Number of species (Število vrst)	33	27	19	20	18	26	25	20	20	33
Relevé area (Velikost popisne ploskve)	m <sup>2</sup>	10	20	10	20	20	20	20	15	10
Date of taking relevé (Datum popisa)	8/8/2013	8/8/2013	8/8/2013	8/8/2013	7/15/2020	8/8/2013	8/12/2021	8/12/2021	8/7/1983	8/8/2013
Locality (Nahajališče)	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica
Quadrant (Kvadrant)	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4
Coordinate GK Y (D-48)	m	396132	396153	396208	396238	396186	396287	396131	396279	396177
Coordinate GK X (D-48)	m	5144333	5144279	5144296	5144328	5144305	5144339	5144328	5144478	5144403
<b>Diagnostic species of the association (Diagnostične vrste asociacije)</b>										
JT <i>Carex curvula</i>	E1	1	2	4	3	3	3	2	1	3
NS <i>Nardus stricta</i>	E1	1	1	2	3	3	4	+	1	.
ES <i>Carex sempervirens</i>	E1	+	.	.	.	.	+	+	+	.
<b>Differential species of the subassociation (Razlikovalnice subasociacije)</b>										
LV <i>Vaccinium gaultherioides</i>	E1	4	4	4	4	4	3	4	4	2
JT <i>Helictotrichon versicolor</i>	E1	2	1	+	1	2	+	2	2	1
JT <i>Juncus trifidus</i>	E1	1	3	4	4	3	1	2	3	2
NS <i>Luzula alpina</i>	E1	+	1	1	1	1	1	1	2	.
JT <i>Juncus jacquinii</i>	E1	+	+	+	+	.	+	.	.	+
VP <i>Vaccinium vitis-idaea</i>	E1	.	.	.	.	.	+	.	.	.
JT <i>Hieracium alpinum</i>	E1	1	1	.	+	.	+	+	.	.

11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Pr.	Fr.	
249437	249439	249433	281934	270597	249436	281930	281929	281931	253959	270604	217617	254634	277230	249428	281932	249431	249438	270596	270599	277183	282526			
2140	2160	2120	2110	2125	2130	2125	2120	2110	2075	2110	1930	2110	2035	2090	2080	2110	2140	2125	2120	2080	2160			
NW	SW	NW	NW	SW	SW	W	SW	SW	W	SW	NE	NW	0	NW	NW	NW	SW	W	W	W	SW			
10	10	5	5	10	10	2	15	10	10	10	10	3	0	10	10	10	5	10	20	2	10			
LMCh	LMCh	LMCh	LM	LMCh	LMCh	LM	LM	LM	M	LMCh	M	LM	LMCh	LMCh	LM	LMCh	LMCh	LMCh	LMCh	LMCh	LMCh			
Dy	Dy	Dy	Dy	Dy	Dy	DyRa	Dy	Dy	Dy	DyRa	Dy	Dy	Dy	Dy	Dy	Dy	Dy	Dy	Dy	Dy	Dy			
0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0			
90	90	100	95	100	90	95	90	90	100	100	100	100	100	100	95	100	95	100	100	98	100			
20	10	1	5	1	20	0	10	10	0	0	0	0	0	0	5	0	5	0	0	0	0			
28	26	23	22	17	27	22	20	23	20	24	23	20	23	19	16	25	21	17	19	33	27			
10	10	20	20	10	5	15	20	20	10	20	20	5	10	20	20	20	20	15	15	10	20			
8/8/2013	8/8/2013	8/8/2013	7/15/2020	8/7/1983	8/8/2013	7/15/2020	7/15/2020	7/15/2020	7/7/2014	8/10/2001	7/12/2007	10/3/2014	7/17/2019	8/8/2013	7/15/2020	8/8/2013	8/8/2013	8/7/1983	8/7/1983	7/16/2019	8/20/2020			
Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Mali vrh	Bedinji vrh-Konjska škrbina	Mangart-Rdeča glava	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Jarečica	Mangart-Mangartsko sedlo	Mangart-Jarečica		
396348	396381	396247	396228	396279	396310	396306	396250	396218	396122	396240	395896	396443	395941	396163	396160	396212	396332	396289	396256	396385	396375			
5144386	5144461	5144298	5144280	5144332	5144295	5144281	5144304	5144265	5144336	5144356	5144085	5140310	5145086	5144317	5144320	5144265	5144371	5144428	5144410	5145544	5144403			
9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9647/2	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4	9547/4			
4	4	3	4	3	4	2	3	2	2	4	+	.	.	+	3	1	2	4	3	.	2			
1	1	2	+	2	+	+	1	2	.	.	3	3	4	4	3	4	4	1	1	1	+	29	91	
.	.	+	+	+	+	+	+	.	.	.	.	.	1	.	.	.	.	.	+	+	.	28	88	
3	2	2	+	2	2	3	3	4	4	1	1	3	3	1	.	3	+	+	.	+	+	30	94	
1	1	1	2	1	1	3	+	3	.	1	3	.	2	2	3	+	+	1	1	2	3	30	94	
1	1	4	3	2	2	3	1	1	1	2	.	.	.	r	.	+	.	+	.	1	.	25	78	
1	+	1	1	.	1	1	1	2	+	.	.	.	.	+	2	1	2	.	.	.	+	23	72	
+	+	+	1	.	+	+	1	1	.	1	.	.	+	.	.	+	1	+	+	+	3	22	69	
2	.	1	+	2	3	1	4	2	3	1	1	.	.	.	.	1	+	.	.	.	+	16	50	
+	.	r	.	.	2	2	.	+	1	+	.	.	.	.	+	+	+	.	.	+	.	15	47	

Successive number of relevé (Zaporedna številka popisa)		1	2	3	4	5	6	7	8	9	10
NS	<b>Nardion strictae</b>										
	<i>Festuca nigrescens</i>	E1	+	+	.	.	.	+	.	+	.
	<i>Pseudorchis albida</i>	E1	.	r	.	.	+	.	+	+	.
	<i>Luzula exspectata</i>	E1	.	.	.	.	.	.	.	1	.
	<i>Antennaria dioica</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Coeloglossum viride</i>	E1	+	.	.	.	.	+	.	.	.
	<i>Alchemilla flabellata</i>	E1	.	.	.	.	.	.	.	.	+
	<i>Arnica montana</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Hieracium lactucella</i>	E1	.	.	.	.	.	.	.	.	.
JT	<b>Juncetea trifidi, Festucion variae</b>										
	<i>Scorzoneroides helvetica</i>	E1	1	1	2	2	1	1	1	2	2
	<i>Geum montanum</i>	E1	+	+	1	+	+	1	+	.	1
	<i>Campanula scheuchzeri</i>	E1	1	1	2	1	+	1	1	2	+
	<i>Potentilla aurea</i>	E1	+	+	.	+	.	+	+	+	+
	<i>Anthoxanthum nipponicum</i>	E1	1	1	1	1	+	1	1	1	2
	<i>Solidago virgaurea</i> subsp. <i>minuta</i>	E1	.	+	+	+	.	+	.	.	+
	<i>Agrostis rupestris</i>	E1	1	+	+	1	.	+	+	+	+
	<i>Euphrasia pulchella</i>	E1	1	+	.	.	.	1	.	.	+
	<i>Luzula alpinopilosa</i>	E1	.	r	+	.	.	+	.	.	1
	<i>Euphrasia minima</i>	E1	+	.	+	.	.	.	.	.	1
	<i>Luzula spicata</i>	E1	.	.	.	.	.	.	.	.	.
LV	<b>Loiseleurio-Vaccinietea</b>										
	<i>Juniperus alpina</i>	E1	.	+	.	.	.	.	.	.	.
	<i>Loiseleuria procumbens</i>	E1	.	.	.	.	.	.	.	.	.
VP	<b>Vaccinio-Piceetea</b>										
	<i>Homogyne alpina</i>	E1	1	1	+	+	1	+	1	1	2
	<i>Vaccinium myrtillus</i>	E1	4	3	3	3	3	3	4	3	3
	<i>Luzula luzuloides</i> subsp. <i>rubella</i>	E1	.	.	.	.	.	+	.	.	2
	<i>Rhytidiadelphus triquetrus</i>	E0	+	+	.	.	.	.	+	.	.
	<i>Luzula sylvatica</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Pleurozium schreberi</i>	E0	.	.	.	.	.	.	.	.	+
OE	<b>Oxytropido-Elynon</b>										
	<i>Salix serpyllifolia</i>	E1	+	.	.	.	.	.	.	.	+
	<i>Antennaria carpatica</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Elyna myosuroides</i>	E1	.	.	.	.	.	.	.	.	.
Cfir	<b>Caricion firmae</b>										
	<i>Silene acaulis</i>	E1	r	.	.	.	.	.	+	.	+
	<i>Carex firma</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Oxytropis neglecta</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Minuartia sedoides</i>	E1	.	.	.	.	.	.	.	.	.
Cfer	<b>Caricion ferrugineae</b>										
	<i>Trifolium thalii</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Knautia longifolia</i>	E1	.	.	.	.	.	.	.	.	.
ES	<b>Elyno-Seslerietea</b>										
	<i>Polygonum viviparum</i>	E1	1	+	1	1	1	+	1	1	1
	<i>Selaginella selaginoides</i>	E1	+	.	.	.	.	.	.	.	+

11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Pr.	Fr.	
.	.	.	.	.	+	+	.	.	.	.	1	1	.	+	.	+	.	.	+	+	.	12	38	
.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	r	.	.	.	.	.	.	6	19	
.	.	.	.	+	.	.	+	.	.	1	1	.	+	.	.	.	.	.	.	.	.	6	19	
+	.	.	+	.	.	.	.	.	.	+	+	.	+	.	.	+	.	.	.	.	.	6	19	
.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	+	4	13
.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	3	9
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.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	1	3
2	2	2	1	2	1	2	1	1	1	2	1	1	1	1	2	1	1	2	2	+	.	31	97	
2	2	+	+	1	1	+	+	+	+	+	1	2	2	2	1	1	2	2	2	1	3	31	97	
1	1	2	+	1	1	+	.	+	+	1	+	+	1	1	+	2	1	.	+	1	1	30	94	
1	1	+	+	+	1	1	.	+	1	+	1	.	+	+	+	1	1	1	2	2	2	28	88	
+	+	1	.	+	1	1	1	1	.	+	.	+	.	1	+	1	1	.	1	2	1	27	84	
+	.	1	+	.	+	.	+	+	.	2	+	.	.	+	+	+	1	.	.	+	.	18	56	
+	+	+	.	.	+	.	.	.	.	.	.	.	+	.	.	.	.	.	2	3	+	17	53	
1	2	.	.	.	.	.	.	.	.	.	.	.	.	1	.	+	+	.	.	.	.	9	28	
.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	.	.	+	1	.	.	9	28	
+	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	5	16	
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1	3
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	3
.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	3
+	1	.	+	2	+	.	+	+	1	+	2	2	1	1	1	+	+	1	.	.	.	27	84	
1	+	.	.	1	1	.	+	.	2	.	2	3	3	3	4	1	+	.	.	.	.	23	72	
.	.	+	.	.	+	1	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	7	22	
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	9
.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	.	.	.	2	6
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	3
.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	4	13
+	+	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	+	4	13
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	3
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	4	13
.	.	.	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	3
.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	3
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1	3
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	+	2	6
.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	1	3
1	1	1	+	1	1	1	1	1	1	1	1	1	1	.	.	+	+	1	+	1	1	30	94	
.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	+	.	4	13

Successive number of relevé (Zaporedna številka popisa)		1	2	3	4	5	6	7	8	9	10
	<i>Rhinanthus glacialis</i>	E1	.	.	.	.	.	.	.	.	+
	<i>Thymus praecox</i> subsp. <i>polytrichus</i>	E1	.	.	.	.	.	.	.	.	+
	<i>Agrostis alpina</i>	E1	.	.	.	.	.	.	.	.	+
	<i>Nigritella rbellicani</i>	E1	.	r	.	.	.	.	.	.	.
	<i>Galium anisophyllum</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Bartsia alpina</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Ranunculus carinthiacus</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Cerastium strictum</i>	E1	.	.	.	.	.	.	.	.	.
SH	<b>Salicetea herbaceae</b>										
	<i>Soldanella pusilla</i>	E1	.	.	.	.	.	.	.	1	.
	<i>Gnaphalium supinum</i>	E1	.	.	.	.	.	.	.	.	.
AC	<b>Arabidetalia caeruleae</b>										
	<i>Salix retusa</i>	E1	2	.	.	.	.	r	.	+	+
	<i>Alchemilla fissa</i>	E1	+	.	.	.	.	.	.	.	.
	<i>Trifolium pallescens</i>	E1	.	.	.	.	.	.	.	.	+
	<i>Soldanella alpina</i>	E1	.	.	.	.	.	.	.	.	.
TR	<b>Thlaspietea rotundifolii</b>										
	<i>Festuca nitida</i>	E1	.	.	.	.	.	.	.	1	.
	<i>Rhodiola rosea</i>	E1	r	.	.	.	.	.	.	.	.
	<i>Silene vulgaris</i> subsp. <i>antelopum</i>	E1	.	.	.	.	.	.	.	.	.
SCF	<b>Scheuchzerio-Caricetea fuscae</b>										
	<i>Phleum alpinum</i>	E1	.	.	.	.	.	.	.	.	.
MuA	<b>Mulgedio-Aconitetea</b>										
	<i>Allium victorialis</i>	E1	.	.	.	.	.	.	.	.	+
FB	<b>Festuco-Brometea</b>										
	<i>Hieracium pilosella</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Allium senescens</i>	E1	.	.	.	.	.	.	.	.	.
PaT	<b>Poo alpinae-Trisetetalia</b>										
	<i>Poa alpina</i>	E1	+	.	.	+	1	+	1	1	.
	<i>Euphrasia picta</i>	E1	.	.	.	.	+	.	+	1	.
	<i>Trollius europaeus</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Crepis aurea</i>	E1	.	.	.	.	.	.	.	.	.
MA	<b>Molinio-Arrhenatheretea</b>										
	<i>Leontodon hispidus</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Scorzoneroides autumnalis</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Trifolium pratense</i>	E1	.	.	.	.	.	.	.	.	.
FS	<b>Fagetalia sylvaticae</b>										
	<i>Daphne mezereum</i>	E1	.	.	.	.	.	.	.	.	.
EP	<b>Rhododendro hirsuti-Ericetalia carneae</b>										
	<i>Erica carnea</i>	E1	.	.	.	.	.	.	.	.	.
	<i>Rhododendron hirsutum</i>	E1	.	.	.	.	.	.	.	.	.
O	<b>Other species (Druge vrste)</b>										
	<i>Leontodon</i> sp.	E1	.	.	.	.	.	.	.	.	.
	<i>Minuartia</i> sp.	E1	.	.	.	.	.	.	.	.	.
	<i>Agrostis</i> sp.	E1	.	.	.	.	.	.	.	.	.
	<i>Euphrasia</i> sp.	E1	.	.	.	.	.	.	.	.	.





Successive number of relevé (Zaporedna številka popisa)		1	2	3	4	5	6	7	8	9	10	
ML	<b>Mosses and lichens (Mahovi in lišaji)</b>											
	<i>Cladonia arbuscula</i>	E0	+	1	+	1	1	+	2	1	.	1
	<i>Cetraria islandica</i>	E0	2	1	.	.	1	.	.	.	.	1
	<i>Dicranum</i> sp.	E0	+	.	.	.	.	.	.	.	.	.
	<i>Dicranodontium</i> sp.	E0	.	.	.	.	.	.	.	.	.	.
	<i>Polytrichum juniperinum</i>	E0	.	.	.	.	.	.	.	.	.	.
	<i>Cetraria</i> sp.	E0	.	.	.	.	.	.	.	.	.	.
	<i>Cladonia furcata</i>	E0	.	.	.	.	.	.	.	.	.	.

**Legend-Legenda**

ID	Igor Dakskobler	Ch	Chert – Roženec
TW	Tone Wraber	Dy	Dystric brown soil – Distrična rjava tla
AP	Andrej Podobnik	DyRa	Dystric ranker – Distrični ranker
BV	Branko Vreš	Pr.	Presence (number of relevés in which the species is presented) – število popisov, v katerih se pojavlja vrsta
SB	Sanja Behrič	Fr.	Frequency in % – frekvenca v %
L	Limestone – Apnenec		
M	Marlstone – Laprovec		

**Table 3 (Tabela 3):** *Eriophoro-Nardetum strictae*, *Sieversio-Nardetum*

Successive number of relevé (Zaporedna številka popisa)	1	2	3	4
Database number of relevé (Delovna številka popisa)	217601	283870	217603	283868
Author of the relevé (Avtor popisa)	IDBVBA	ID	IDBVBA	ID
Elevation in m (Nadmorska višina v m)	1690	1690	1690	1690
Aspect (Lega)	0	0	0	0
Slope in degrees (Nagib v stopinjah)	0	0	0	0
Parent material (Matična podlaga)	M	M	M	M
Soil (Tla)	Gl	Gl	Gl	Gl
Stoniness in % (Kamnitost v %)	0	0	0	0
Cover of shrub layer in % (Zastiranje grmovne plasti v %):	0	0	0	0
Cover of herb layer in % (Zastiranje zeliščne plasti v %):	100	100	100	100
Cover of moss layer in % (Zastiranje mahovne plasti v %):	0	0	0	0
Number of species (Število vrst)	10	6	13	13
Relevé area (Velikost popisne ploskve)	m <sup>2</sup> 10	20	10	20
Date of taking relevé (Datum popisa)	7/13/2007	8/7/2020	7/13/2007	8/7/2020
Locality (Nahajališče)	Spodnji Lepoč	Spodnji Lepoč	Spodnji Lepoč	Spodnji Lepoč
Mountain range (Pogorje)	JA	JA	JA	JA
Quadrant (Kvadrant)	9647/2	9647/2	9647/2	9647/2
Coordinate GK Y (D-48)	m 396906	396929	396930	396900
Coordinate GK X (D-48)	m 5140163	5140132	5140146	5140144

**Diagnostic species of the syntaxa (Diagnostične vrste sintaksonov)**

CD	<i>Eriophorum angustifolium</i>	E1	1	1	1	1
SCF	<i>Juncus filiformis</i>	E1	4	1	.	+
SCF	<i>Callierygonella lindbergii</i> *	E0	.	.	.	.
JT	<i>Geum montanum</i>	E1	.	.	.	.
SCF	<i>Carex canescens</i>	E1	.	.	.	.
NS	<i>Festuca nigrescens</i>	E1	.	.	+	2
NS	<i>Luzula exspectata</i>	E1	.	.	+	+

11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Pr.	Fr.	
1	1	+	1	.	2	1	2	2	2	.	.	.	.	.	.	.	+	.	.	.	.	+	20	63
2	+	.	.	.	.	.	.	.	.	+	.	.	+	.	.	.	.	.	.	.	.	+	9	28
.	.	.	.	.	+	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	9
.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	3
.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	3
.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	1	3
.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	1	3

5	6	7	8	9	10	11	12	Pr.	Fr.
276866	253915	284137	268411	268417	262238	216455	253955		
ID	IDBZ	ID	IDBZBA	IDBZBA	ID	ID	ID		
1960	1685	1685	1750	1800	1630	1570	2215		
NE	SW	S	E	NW	NW	0	0		
5	10	15	30	15	5	0	0		
LM	LM	LM	DM	DM	LM	D	L		
Gl	Dy	Dy	Dy	Dy	Dy	Dy	DyRa		
0	1	0	0	0	0	0	5		
0	5	0	0	0	0	0	0		
90	100	95	90	90	100	100	90		
30	0	0	0	0	0	0	0		
23	28	26	24	32	17	26	22		
5	20	30	20	10	10	10	5		
8/28/2019	8/11/2014	7/7/2020	7/27/2017	7/27/2017	7/18/2016	7/31/2007	8/7/2014		
Mangart-Prodi	Gorenji Viševnik	Gorenji Viševnik	Visoki Kurji vrh	Visoki Kurji vrh	Breginjski Stol-Planja	Nemške glave	Tosc		
JA	JA	JA	WK	WK	JA	JA	JA		
9547/4	9648/4	9648/4	9449/3	9549/1	9746/2	9547/3	9649/1		
396168	409440	409441	415299	415063	381412	390810	413125		
5144928	5129601	5129589	5151231	5151075	5127247	5141434	5135021		
.	.	.	.	.	.	.	.	Pr.	Fr.
.	.	.	.	.	.	.	.	4	33
.	.	.	.	.	.	.	.	3	25
2	.	.	.	.	.	.	.	1	8
2	.	.	.	.	.	.	.	1	8
1	.	.	.	.	.	.	.	1	8
+	2	4	3	3	4	.	.	8	67
+	+	1	+	+	.	.	.	7	58

Successive number of relevé (Zaporedna številka popisa)		1	2	3	4	
NS	<b>Nardion strictae</b>					
	<i>Nardus stricta</i>	E1	4	5	4	4
	<i>Potentilla erecta</i>	E1	+	1	1	2
	<i>Carex pallescens</i>	E1	.	.	.	.
	<i>Arnica montana</i>	E1	.	.	.	.
	<i>Agrostis capillaris</i>	E1	.	.	.	.
	<i>Hieracium aurantiacum</i>	E1	.	.	.	.
	<i>Gentiana pannonica</i>	E1	.	.	.	.
	<i>Coeloglossum viride</i>	E1	.	.	+	.
	<i>Alchemilla flabellata</i>	E1	.	.	.	.
	<i>Carex pilulifera</i>	E1	.	.	.	.
	<i>Calluna vulgaris</i>	E1	.	.	.	.
	<i>Antennaria dioica</i>	E1	.	.	.	.
	<i>Danthonia decumbens</i>	E1	.	.	.	.
	<i>Gnaphalium sylvaticum</i>	E1	.	.	.	.
JT	<b>Juncetea trifidi, Festucion variae</b>					
	<i>Anthoxanthum nipponicum</i>	E1	+	.	1	+
	<i>Scorzoneroides helvetica</i>	E1	1	1	1	1
	<i>Potentilla aurea</i>	E1	.	.	.	.
	<i>Campanula scheuchzeri</i>	E1	.	.	.	.
	<i>Solidago virgaurea</i> subsp. <i>minuta</i>	E1	.	.	.	.
	<i>Juncus jacquinii</i>	E1	.	.	.	.
	<i>Luzula spicata</i>	E1	.	.	.	.
	<i>Euphrasia pulchella</i>	E1	.	.	.	.
LV	<b>Loiseleurio-Vaccinietea</b>					
	<i>Vaccinium gaultherioides</i>	E1	.	.	.	+
VP	<b>Vaccinio-Piceetea</b>					
	<i>Vaccinium myrtillus</i>	E1	.	.	+	+
	<i>Homogyne alpina</i>	E1	+	.	1	+
	<i>Luzula sylvatica</i> (incl. subsp. <i>sieberi</i> )	E1	.	.	.	.
	<i>Vaccinium vitis-idaea</i>	E1	.	.	+	.
	<i>Aposeris foetida</i>	E1	.	.	.	.
	<i>Polytrichum commune</i>	E0	+	.	.	.
	<i>Calamagrostis villosa</i>	E1	.	.	.	.
	<i>Larix decidua</i>	E2a	.	.	.	.
	<i>Avenella flexuosa</i>	E1	.	.	.	.
	<i>Polytrichum formosum</i>	E0	.	.	.	.
Cfir	<b>Caricion firmae</b>					
	<i>Minuartia sedoides</i>	E1	.	.	.	.
	<i>Silene acaulis</i>	E1	.	.	.	.
	<i>Carex firma</i>	E1	.	.	.	.
Cfer	<b>Caricion ferrugineae</b>					
	<i>Knautia longifolia</i>	E1	.	.	.	.
	<i>Phleum hirsutum</i>	E1	.	.	.	.
	<i>Gentiana pumila</i>	E1	.	.	.	.
CA	<b>Caricion austroalpinae</b>					
	<i>Koeleria eriostachya</i>	E1	.	.	.	.
	<i>Senecio abrotanifolius</i>	E1	.	.	.	.

5	6	7	8	9	10	11	12	Pr.	Fr.
4	3	3	4	1	3	4	4	12	100
.	.	2	+	1	1	1	.	9	75
.	+	2	+	+	1	+	.	6	50
.	1	2	1	.	2	.	.	4	33
.	.	.	1	2	.	+	.	3	25
.	1	r	.	.	.	.	.	2	17
.	+	1	.	.	.	.	.	2	17
.	.	.	.	.	.	.	.	1	8
.	.	+	.	.	.	.	.	1	8
.	.	+	.	.	.	.	.	1	8
.	.	.	3	.	.	.	.	1	8
.	.	.	2	.	.	.	.	1	8
.	.	.	1	.	.	.	.	1	8
.	.	.	.	+	.	.	.	1	8
.	.	.	1	1	2	1	.	7	58
+	.	.	.	.	.	.	.	5	42
+	1	1	.	.	.	.	1	4	33
+	1	.	+	.	.	+	.	4	33
.	1	+	.	.	.	.	.	2	17
+	.	.	.	.	.	.	.	1	8
.	.	.	.	.	.	.	1	1	8
.	.	.	.	.	.	.	+	1	8
.	.	.	.	.	.	.	.	1	8
.	.	.	1	+	+	+	.	6	50
.	.	.	.	.	1	+	.	5	42
.	.	.	+	1	+	1	.	4	33
.	.	.	.	.	+	.	.	2	17
.	.	.	.	+	.	1	.	2	17
.	.	.	.	.	.	.	.	1	8
.	.	.	.	.	.	2	.	1	8
.	+	.	.	.	.	.	.	1	8
.	.	.	1	.	.	.	.	1	8
.	.	.	.	.	+	.	.	1	8
.	.	.	.	.	.	.	1	1	8
.	.	.	.	.	.	.	1	1	8
.	.	.	.	.	.	.	+	1	8
.	1	+	.	.	.	.	.	2	17
.	+	.	.	+	.	.	.	2	17
.	.	.	.	.	.	.	+	1	8
.	.	+	.	.	.	.	.	1	8
.	.	.	+	.	.	.	.	1	8

Successive number of relevé (Zaporedna številka popisa)		1	2	3	4
ES	<b>Elyno-Seslerietea</b>				
	<i>Polygonum viviparum</i>	E1	.	.	.
	<i>Ranunculus montanus</i>	E1	.	.	.
	<i>Lotus alpinus</i>	E1	.	.	.
	<i>Nigritella rhellicani</i>	E1	.	.	.
	<i>Betonica alopecuroides</i>	E1	.	.	.
	<i>Thymus praecox</i> subsp. <i>polytrichus</i>	E1	.	.	.
	<i>Astrantia bavarica</i>	E1	.	.	.
	<i>Polygala alpestris</i>	E1	.	.	.
	<i>Galium anisophyllum</i>	E1	.	.	.
	<i>Selaginella selaginoides</i>	E1	.	.	.
	<i>Ranunculus carinthiacus</i>	E1	.	.	.
SH	<b>Salicetea herbaceae</b>				
	<i>Salix herbacea</i>	E1	.	.	.
	<i>Sibbaldia procumbens</i>	E1	.	.	.
	<i>Veronica alpina</i>	E1	.	.	.
	<i>Soldanella pusilla</i>	E1	.	.	.
	<i>Gnaphalium supinum</i>	E1	.	.	.
AC	<b>Arabidetalia caeruleae</b>				
	<i>Alchemilla fissa</i>	E1	.	.	.
	<i>Homogyne discolor</i>	E1	.	.	.
	<i>Salix retusa</i>	E1	.	.	.
	<i>Taraxacum</i> sect. <i>Alpina</i>	E1	.	.	.
	<i>Carex parviflora</i>	E1	.	.	.
	<i>Galium noricum</i>	E1	.	.	.
	<i>Sagina saginoides</i>	E1	.	.	.
TR	<b>Thlaspietea rotundifolii</b>				
	<i>Biscutella laevigata</i>	E1	.	.	.
	<i>Heliosperma alpestre</i>	E1	.	.	.
	<i>Achillea atrata</i>	E1	.	.	.
	<i>Cirsium spinosissimum</i>	E1	.	.	.
MC	<b>Montio-Cardaminetea</b>				
	<i>Epilobium alsinifolium</i>	E1	.	.	.
	<i>Bryum pseudotriquetrum</i> *	E0	.	.	.
	<i>Palustriella decipiens</i> *	E0	.	.	.
MuA	<b>Mulgedio-Aconitetea, Betulo-Alnetea</b>				
	<i>Veratrum album</i> s. lat.	E1	+	.	+
	<i>Rumex arifolius</i>	E1	.	.	+
	<i>Hypericum maculatum</i>	E1	.	.	.
	<i>Heracleum pollinianum</i>	E1	.	.	.
	<i>Senecio cacaliaster</i>	E1	.	.	.
	<i>Stellaria nemorum</i>	E1	.	.	.
	<i>Viola biflora</i>	E1	.	.	.
	<i>Chaerophyllum hirsutum</i>	E1	.	.	.
	<i>Heracleum montanum</i>	E1	.	.	.
FS	<b>Festuco-Brometea, Trifolio-Geranietea</b>				
	<i>Silene nutans</i>	E1	.	.	.
	<i>Hieracium pilosella</i>	E1	.	.	.

5	6	7	8	9	10	11	12	Pr.	Fr.
1	.	+	.	.	.	+	1	4	33
.	+	.	.	.	.	+	.	2	17
.	.	.	+	.	.	+	.	2	17
.	.	.	.	+	+	.	.	2	17
.	.	.	.	.	.	+	.	1	8
.	.	.	.	.	.	+	.	1	8
.	+	.	.	.	.	.	.	1	8
.	+	.	.	.	.	.	.	1	8
.	.	.	.	+	.	.	.	1	8
.	.	.	.	+	.	.	.	1	8
.	.	.	.	+	.	.	.	1	8
+	.	.	.	.	.	.	.	1	8
+	.	.	.	.	.	.	.	1	8
+	.	.	.	.	.	.	.	1	8
.	.	.	.	.	.	.	+	1	8
.	.	.	.	.	.	.	+	1	8
+	.	.	.	.	.	.	1	2	17
.	.	.	.	+	.	.	1	2	17
.	.	.	.	.	.	.	+	1	8
.	.	.	.	.	.	.	+	1	8
.	.	.	.	.	.	.	+	1	8
.	.	.	.	.	.	.	+	1	8
.	.	.	.	.	.	.	+	1	8
.	.	.	.	.	.	.	+	1	8
.	+	.	.	.	.	.	.	1	8
.	.	.	.	1	.	.	.	1	8
.	.	.	.	.	.	.	+	1	8
.	.	.	.	.	.	.	r	1	8
+	.	.	.	.	.	.	.	1	8
+	.	.	.	.	.	.	.	1	8
+	.	.	.	.	.	.	.	1	8
.	+	2	.	.	+	.	.	6	50
.	.	+	.	.	+	.	.	3	25
.	1	1	+	.	.	.	.	3	25
r	.	.	.	.	.	.	.	1	8
.	+	.	.	.	.	.	.	1	8
.	+	.	.	.	.	.	.	1	8
.	.	.	.	.	.	.	.	1	8
.	.	.	.	.	.	.	.	1	8
.	.	.	.	.	.	.	.	1	8
.	.	.	.	.	.	.	.	1	8
.	.	.	.	.	.	.	.	1	8
.	.	+	+	+	.	.	.	3	25
.	.	.	1	+	.	.	.	2	17

Successive number of relevé (Zaporedna številka popisa)		1	2	3	4
	<i>Carlina acaulis</i>	E1	.	.	.
	<i>Koeleria pyramidata</i>	E1	.	.	.
PaT	<b><i>Poo alpinae-Trisetetalia</i></b>				
	<i>Poa alpina</i>	E1	.	.	.
	<i>Euphrasia picta</i>	E1	.	.	.
	<i>Trollius europaeus</i>	E1	.	.	.
	<i>Phleum rhaeticum</i>	E1	.	.	.
	<i>Ranunculus nemorosus</i>	E1	.	.	.
	<i>Polygonum bistorta</i>	E1	.	.	.
	<i>Cerastium fontanum</i>	E1	.	.	.
MA	<b><i>Molinio-Arrhenatheretea</i></b>				
	<i>Deschampsia cespitosa</i>	E1	1	+	1
	<i>Trifolium pratense</i>	E1	.	.	.
	<i>Veronica chamaedrys</i>	E1	.	.	.
	<i>Trifolium repens</i>	E1	.	.	.
	<i>Cerastium holosteoides</i>	E1	.	.	.
	<i>Leontodon hispidus</i>	E1	.	.	.
	<i>Dactylis glomerata</i>	E1	.	.	.
	<i>Stellaria graminea</i>	E1	.	.	.
	<i>Prunella vulgaris</i>	E1	.	.	.
	<i>Luzula campestris</i>	E1	.	.	.
QF	<b><i>Quercu-Fagetea</i></b>				
	<i>Hieracium lachenalii</i>	E1	.	.	.
	<i>Anemone nemorosa</i>	E1	.	.	.
	<i>Veronica officinalis</i>	E1	.	.	.
EP	<b><i>Rhododendro hirsuti-Ericetalia carnea, Erico-Pinetea</i></b>				
	<i>Erica carnea</i>	E1	.	.	.
	<i>Carex ornithopoda</i>	E1	.	.	.
	<i>Pinus mugo</i>	E1	.	.	.
O	<b>Other species (Druge vrste)</b>				
	<i>Alchemilla</i> sp.	E1	.	.	.
ML	<b>Mosses and lichens (Mahovi in lišaji)</b>				
	<i>Climacium dendroides</i> *	E0	.	.	.
	<i>Brachythecium starkei</i> *	E0	.	.	.

### Legend-Legenda

ID	Igor Dakskobler	Gl	Molic Gleysols – Organsko-mineralna tla
BV	Branko Vreš	JA	Julian Alps – Julijske Alpe
BA	Brane Anderle	WK	Western Karawanks – Zahodne Karavanke
BZ	Branko Zupan	Pr.	Presence (number of relevés in which the species is presented) – število popisov, v katerih se pojavlja vrsta
SB	Sanja Behrič	Fr.	Frequency in % – frekvenca v %
L	Limestone – Apnenec	*	det. Andrej Martinčič
M	Marlstone – Laporovec	1–4	<i>Eriophoro angustifolii-Nardetum strictae</i>
D	Dolomite – Dolomit	5	<i>Sieversio-Nardetum caricetosum canescentis</i> nom. prov.
Dy	Dystric brown soil – Distrična rjava tla	6–12	<i>Sieversio-Nardetum strictae</i> s. lat.
DyRa	Dystric ranker – Distrični ranker		



5	6	7	8	9	10	11	12	Pr.	Fr.
.	.	.	+	.	.	+	.	2	17
.	.	.	.	.	.	+	.	1	8
1	1	+	.	1	.	+	.	5	42
+	.	.	.	1	.	r	.	3	25
.	+	.	.	.	.	1	.	2	17
.	1	.	.	.	+	.	.	2	17
.	.	+	.	.	.	.	.	1	8
.	.	.	.	.	1	.	.	1	8
.	.	.	.	.	.	.	+	1	8
.	+	.	.	.	+	.	.	5	42
.	1	+	.	1	.	.	.	3	25
.	+	1	.	.	.	.	.	2	17
.	.	1	.	+	.	.	.	2	17
.	.	+	.	+	.	.	.	2	17
.	.	.	.	2	.	.	1	2	17
.	.	.	.	.	.	1	.	1	8
.	.	.	.	+	.	.	.	1	8
.	.	.	.	+	.	.	.	1	8
.	.	.	.	.	+	.	.	1	8
.	.	.	.	.	.	.	.	2	17
.	.	.	+	+	.	.	.	1	8
.	.	1	.	.	.	.	.	1	8
.	.	.	1	+	.	.	.	2	17
.	.	.	.	.	.	+	.	1	8
.	.	.	.	.	.	r	.	1	8
.	+	.	.	+	.	.	.	2	17
1	.	.	.	.	.	.	.	1	8
+	.	.	.	.	.	.	.	1	8

**Table 4 (Tabela 4):** *Homogyne alpinae-Nardetum strictae scorzonoidetosum croceae*

Successive number of relevé (Zaporedna številka popisa)	1	2	3	4	5	6	
Database number of relevé (Delovna številka popisa)	229465	217739	241122	241216	241219	217740	
Author of the relevé (Avtor popisa)	IDASBV	IDBA	IDBZ	IDBZ	IDBZ	IDBA	
Elevation in m (Nadmorska višina v m)	1850	1520	1580	1510	1520	1505	
Aspect (Lega)	W	NW	W	NE	W	0	
Slope in degrees (Nagib v stopinjah)	5	5	10	5	5	0	
Parent material (Matična podlaga)	LM	L	LCh	DL	L	L	
Soil (Tla)	Dy	Dy	Dy	LBS	LBS	LBS	
Stoniness in % (Kamnitost v %)	0	0	0	0	0	0	
Cover of herb layer in % (Zastiranje zeliščne plasti v %):	100	100	100	100	100	90	
Cover of moss layer in % (Zastiranje mahovne plasti v %):	0	0	0	0	0	10	
Number of species (Število vrst)	35	32	39	29	27	53	
Relevé area (Velikost popisne ploskve)	m <sup>2</sup> 20	20	20	10	20	10	
Date of taking relevé (Datum popisa)	7. 17. 2009	7. 6. 2007	6. 27. 2011	6. 27. 2011	6. 27. Ž2011	7. 6. 2007	
Locality (Nahajališče)	Klečica	Planina Klek	Planina Klek	Planina Klek	Planina Klek	Planina Klek	
Mountain range (Pogorje)	JA	JA	JA	JA	JA	JA	
Quadrant (Kvadrant)	9649/2	9649/2	9649/2	9649/2	9649/2	9649/2	
Coordinate GK Y (D-48)	m 419157	420538	420819	420426	420506	420416	
Coordinate GK X (D-48)	m 5139751	5139262	5139316	5139147	5139173	5139172	
<b>Diagnostic species of the association (Diagnostične vrste asociacije)</b>							
NS <i>Nardus stricta</i>	E1	1	3	3	3	4	3
NS <i>Luzula exspectata</i>	E1	+	1	+	+	+	+
NS <i>Festuca nigrescens</i>	E1	1	1	1	+	+	1
NS <i>Gentiana pannonica</i>	E1	.	+	+	r	.	+
VP <i>Homogyne alpina</i>	E1	.	+	.	+	.	+
<b>Differential species of the subassociation (Razlikovalnice subasociacije)</b>							
FB <i>Carex montana</i>	E1	.	.	.	.	1	+
JT <i>Scorzoneroides crocea</i>	E1	.	.	.	+	+	.
AC <i>Soldanella alpina</i>	E1	1	+	+	+	+	.
AC <i>Salix retusa</i>	E1	.	.	.	+	+	+
AC <i>Homogyne discolor</i>	E1	+	+	+	+	+	.
NS <b><i>Nardetalia strictae</i></b>							
<i>Arnica montana</i>	E1	.	+	+	2	2	1
<i>Potentilla erecta</i>	E1	.	+	1	+	1	1
<i>Carex pallescens</i>	E1	.	1	2	.	+	1
<i>Antennaria dioica</i>	E1	.	.	+	+	.	1
<i>Carex pilulifera</i>	E1	.	+	1	.	.	1
<i>Hieracium lactucella</i>	E1	.	+	2	.	.	+
<i>Agrostis capillaris</i>	E1	.	+	.	.	.	.

7	8	9	10	11	12	13	14	15	16	17	18	19	Pr.	Fr.
221459	241210	221458	226266	226267	238451	238452	241199	241222	238453	241220	241218	241221		
ID	IDBZ	ID	IDASBV	IDASBV	IDBZIV	IDBZIV	IDBZ	IDBZ	IDBZIV	IDBZ	IDBZ	IDBZ		
1505	1500	1505	1510	1510	1520	1530	1535	1530	1535	1520	1515	1520		
0	SW	SE	E	SW	NNW	W	NW	NWW	NW	NE	SW	SWW		
0	10	2	2	1	5	10	5	5	10	2	5	3		
LM	LCh	LM	LMCh	LMCh	L	L	DL	DL	L	L	L	LGr		
Dy	Dy	Dy	DyRa	DyRa	LBS	LBS	LBS	LBS	LBS	LBS	LBS	LBS		
1	0	1	0	0	0	0	0	0	0	0	10	0		
90	100	100	100	100	100	100	100	100	100	100	90	100		
0	0	0	0	0	0	0	0	0	0	0	0	0		
52	39	32	43	42	35	32	32	32	36	29	32	35		
20	20	10	6	6	20	20	20	20	20	20	10	20		
7. 9.	6. 27.	7. 9.	7. 17.	7. 17.	6. 30.	6. 30.	6. 27.	6. 27.	6. 30.	6. 27.	6. 27.	6. 27.		
2008	2011	2008	2009	2009	2010	2010	2011	2011	2010	2011	2011	2011		
Planina Klek	Planina Pekel	Planina Klek	Planina Klek	Planina Klek	Planina Klek	Planina Klek	Planina Klek	Planina Klek	Planina Klek	Planina Klek	Planina Klek	Planina Klek		
JA	JA	JA	JA	JA	JA	JA	JA	JA	JA	JA	JA	JA		
9649/2	9549/4	9649/2	9649/2	9649/2	9649/2	9649/2	9649/2	9649/2	9649/2	9649/2	9649/2	9649/2		
420424	421030	420435	420421	420421	420549	420579	420620	420592	420614	420511	420465	420540		
5139160	5140033	5139183	5139142	5139162	5139237	5139217	5139230	5139221	5139215	5139226	5139175	5139206		
													Pr.	Fr.
3	3	4	3	3	3	3	4	3	3	3	3	2	19	100
1	1	1	1	1	1	1	1	1	+	+	1	1	19	100
2	1	1	1	1	1	1	+	1	1	.	.	+	17	89
+	1	1	1	1	+	2	3	2	2	+	+	1	17	89
+	1	.	+	.	+	1	1	1	1	+	1	.	13	68
+	2	.	1	+	+	1	+	1	+	2	+	1	14	74
.	.	.	1	1	+	+	1	+	+	+	1	+	12	63
.	.	.	.	.	+	.	.	+	1	.	+	1	10	53
+	.	+	.	+	.	.	+	.	+	.	+	+	10	53
+	.	.	.	.	+	.	.	.	.	.	+	+	9	47
1	2	1	1	1	1	+	+	2	+	+	2	2	18	95
2	1	2	1	1	1	1	1	1	1	+	1	+	18	95
2	1	2	1	+	+	1	+	.	1	+	1	+	16	84
1	1	+	1	2	1	+	.	+	.	+	1	1	14	74
1	+	1	1	1	+	+	.	.	+	.	.	+	12	63
+	.	.	.	.	.	.	.	+	.	+	+	.	7	37
+	.	.	+	+	.	.	.	.	.	.	.	.	4	21

Successive number of relevé (Zaporedna številka popisa)		1	2	3	4	5	6
	<i>Meum athamanticum</i>	E1	+	.	.	.	.
	<i>Pseudorchis albida</i>	E1	.	.	.	+	.
	<i>Carex leporina</i>	E1	.	.	.	.	+
	<i>Euphrasia rostkoviana</i> subsp. <i>montana</i>	E1	.	.	.	.	+
	<i>Polygala vulgaris</i>	E1	.	.	.	.	.
	<i>Potentilla aurea</i>	E1	.	.	.	.	.
JT	<b>Juncetea trifidi</b>						
	<i>Anthoxanthum nipponicum</i>	E1	2	+	+	1	1
	<i>Campanula scheuchzeri</i>	E1	.	.	.	.	+
	<i>Centaurea nervosa</i>	E1	1	+	.	.	.
	<i>Coeloglossum viride</i>	E1	+	.	+	.	.
LV	<b>Loiseleurio-Vaccinietea</b>						
	<i>Juniperus alpina</i>	E1	.	.	.	.	.
	<i>Diphasiastrum alpinum</i>	E1	.	.	.	.	+
VP	<b>Vaccinio-Piceetea</b>						
	<i>Vaccinium myrtillus</i>	E1	+	1	2	3	1
	<i>Vaccinium vitis-idaea</i>	E1	.	.	.	1	+
	<i>Ajuga pyramidalis</i>	E1	.	.	+	+	.
	<i>Luzula sylvatica</i>	E1	+	.	.	.	.
	<i>Picea abies</i>	E1	.	.	.	.	+
	<i>Larix decidua</i>	E1	.	.	.	.	+
	<i>Pyrola minor</i>	E1	.	.	.	+	.
	<i>Polytrichum formosum</i>	E0	.	.	.	.	+
	<i>Huperzia selago</i>	E1	.	.	.	.	+
	<i>Luzula pilosa</i>	E1	.	.	.	.	.
OE	<b>Oxytropido-Elynon</b>						
	<i>Salix serpillifolia</i>	E1	.	.	.	.	.
Cfir	<b>Caricion firmae</b>						
	<i>Dryas octopetala</i>	E1	.	.	.	.	.
	<i>Helianthemum alpestre</i>	E1	.	.	.	.	.
Cfer	<b>Caricion ferrugineae</b>						
	<i>Carex ferruginea</i>	E1	1	.	.	.	.
CA	<b>Caricion austroalpinae</b>						
	<i>Koeleria eriostachya</i>	E1	.	+	.	.	+
	<i>Heracleum austriacum</i> subsp. <i>siifolium</i>	E1	+	.	.	.	+
ES	<b>Elyno-Seslerietea</b>						
	<i>Polygonum viviparum</i>	E1	.	1	+	+	1
	<i>Thymus praecox</i> subsp. <i>polytrichus</i>	E1	+	+	+	+	.
	<i>Polygala alpestris</i>	E1	1	+	+	+	+
	<i>Ranunculus montanus</i>	E1	+	.	.	.	+
	<i>Galium anisophyllum</i>	E1	+	.	.	.	+
	<i>Potentilla crantzii</i>	E1	1	+	.	.	+
	<i>Lotus alpinus</i>	E1	1	.	.	.	.
	<i>Selaginella selaginoides</i>	E1	.	.	.	+	+
	<i>Alchemilla glaucescens</i>	E1	+	.	+	.	.
	<i>Alchemilla exigua</i>	E1	.	+	.	.	+
	<i>Astrantia bavarica</i>	E1	+	.	+	.	.
	<i>Ranunculus carinthiacus</i>	E1	+	.	.	.	.
	<i>Anthyllis vulneraria</i> subsp. <i>alpestris</i>	E1	.	.	.	.	.
	<i>Salix alpina</i>	E1	.	.	.	.	+



7	8	9	10	11	12	13	14	15	16	17	18	19	Pr.	Fr.
.	.	.	.	.	.	.	.	.	+	.	.	.	2	11
.	+	.	.	.	.	.	.	.	.	.	.	.	2	11
.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
.	.	.	+	.	.	.	.	.	.	.	.	.	1	5
.	.	.	.	.	.	.	.	.	+	.	.	.	1	5
.	.	+	1	1	1	+	+	1	.	+	+	.	15	79
+	.	+	+	+	.	.	.	.	.	+	.	.	6	32
.	.	.	.	.	.	.	+	.	.	+	.	+	5	26
.	.	.	.	.	.	.	.	.	.	.	.	.	2	11
.	.	.	+	+	.	+	.	.	.	.	.	.	3	16
+	.	.	.	.	.	.	.	.	.	.	.	.	2	11
+	2	.	+	1	1	+	+	+	1	+	+	.	17	89
+	1	1	1	1	.	+	.	.	.	+	.	1	11	58
.	.	.	.	.	+	.	.	.	.	.	+	+	6	32
.	+	.	.	+	.	.	+	.	1	.	.	.	5	26
.	.	.	+	+	.	.	.	.	.	.	.	.	3	16
.	.	.	+	.	.	.	.	.	.	.	.	.	2	11
.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
.	.	.	.	.	.	.	+	.	.	.	.	.	1	5
.	.	.	+	.	+	.	.	.	.	.	.	.	2	11
.	.	.	.	.	+	.	.	.	.	.	.	r	2	11
.	.	.	.	.	.	.	.	.	.	+	.	.	1	5
.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
+	.	.	.	.	.	.	.	.	.	.	.	.	3	16
.	.	.	.	+	.	.	.	.	.	.	.	.	3	16
+	.	1	+	1	1	+	1	+	+	1	+	+	17	89
+	1	+	+	+	+	+	+	+	+	+	.	.	16	84
+	+	+	+	.	+	+	+	+	.	.	+	.	14	74
+	1	+	+	+	.	+	+	.	+	+	+	+	13	68
.	+	+	.	+	.	+	+	+	+	.	+	+	12	63
+	+	.	.	+	.	.	+	.	+	.	+	+	10	53
+	+	+	+	.	.	.	.	.	+	r	.	.	7	37
.	+	.	r	.	.	.	+	+	+	.	.	.	7	37
.	.	.	.	.	.	.	+	.	.	+	.	+	5	26
.	.	.	.	.	+	.	.	.	+	.	.	.	4	21
.	+	.	.	.	.	.	.	+	.	.	.	.	4	21
.	.	.	+	+	.	.	.	.	.	.	.	.	3	16
.	.	.	.	+	+	.	.	.	.	.	.	+	3	16
.	.	.	+	.	.	.	.	.	.	.	.	.	3	16

Successive number of relevé (Zaporedna številka popisa)		1	2	3	4	5	6
	<i>Carex sempervirens</i>	E1	+	.	.	.	.
	<i>Cerastium strictum</i>	E1	+	.	.	.	.
	<i>Gentianella anisodonta</i>	E1	.	.	+	.	.
	<i>Agrostis alpina</i>	E1	.	.	.	.	+
	<i>Thesium alpinum</i>	E1	.	.	.	.	.
	<i>Helianthemum nummularium</i> subsp. <i>grandiflorum</i>	E1	.	.	.	.	.
	<i>Aster bellidiflorum</i>	E1	.	.	.	.	.
	<i>Saussurea discolor</i>	E1	.	.	.	.	.
	<i>Gentiana verna</i>	E1	.	.	.	.	.
	<i>Phyteuma orbiculare</i>	E1	.	.	.	.	.
SH	<b>Salicetea herbaceae</b>						
	<i>Sibbaldia procumbens</i>	E1	.	.	.	.	+
AC	<b>Arabidetalia caeruleae</b>						
	<i>Gnaphalium hoppeanum</i>	E1	.	.	.	.	.
	<i>Alchemilla fissa</i>	E1	.	.	.	.	.
	<i>Veronica alpina</i>	E1	.	.	.	.	.
TR	<b>Thlaspietea rotundifolii</b>						
	<i>Heliosperma alpestre</i>	E1	+	1	+	.	+
CD	<b>Caricetalia davallianae, Scheuchzerio-Caricetea fuscae</b>						
	<i>Tofieldia calyculata</i>	E1	.	+	+	.	1
	<i>Carex nigra</i>	E1	.	.	.	.	+
	<i>Parnassia palustris</i>	E1	.	.	.	.	+
	<i>Carex capillaris</i>	E1	.	+	.	.	.
	<i>Carex flavella</i>	E1	.	.	.	.	.
	<i>Juncus filiformis</i>	E1	.	.	.	.	.
MuA	<b>Mulgedio-Aconitetea</b>						
	<i>Veratrum album</i>	E1	+	.	.	+	+
	<i>Hypericum maculatum</i>	E1	.	+	+	.	+
	<i>Rumex arifolius</i>	E1	+	.	.	.	.
	<i>Cirsium carniolicum</i>	E1	+	.	.	.	.
	<i>Primula elatior</i>	E1	+	.	.	.	.
FB	<b>Festuco-Brometea</b>						
	<i>Carlina acaulis</i>	E1	.	+	1	.	.
	<i>Hieracium pilosella</i>	E1	.	.	+	.	+
	<i>Prunella grandiflora</i>	E1	.	.	.	.	+
	<i>Hippocrepis comosa</i>	E1	.	.	.	.	.
	<i>Koeleria pyramidata</i>	E1	.	.	1	.	.
	<i>Plantago media</i>	E1	.	.	+	.	.
	<i>Carex caryophyllea</i>	E1	.	.	.	.	+
	<i>Briza media</i>	E1	.	.	.	.	.
PaT	<b>Poo alpinae-Trisetetalia</b>						
	<i>Poa alpina</i>	E1	2	1	1	.	1
	<i>Crocus albiflorus</i>	E1	.	.	3	.	+
	<i>Crepis aurea</i>	E1	+	.	+	.	.
	<i>Cerastium fontanum</i>	E1	.	.	.	.	.
	<i>Phleum rhaeticum</i>	E1	+	.	.	.	.
	<i>Euphrasia picta</i>	E1	.	+	.	.	.
	<i>Veronica serpyllifolia</i> subsp. <i>humifusa</i>	E1	.	.	.	.	.
	<i>Trollius europaeus</i>	E1	.	.	.	.	.
	<i>Ranunculus nemorosus</i>	E1	.	.	.	.	.

7	8	9	10	11	12	13	14	15	16	17	18	19	Pr.	Fr.
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.	.	.	.	.	.	.	.	+	.	.	.	.	1	5
.	.	.	.	.	.	.	.	.	+	.	.	.	1	5
.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
+	.	+	.	.	.	.	.	.	.	.	.	.	2	11
.	+	+	.	.	.	.	.	.	.	.	.	.	2	11
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+	.	.	.	.	.	.	.	.	.	.	+	.	6	32
+	1	.	.	.	.	.	.	+	.	.	.	.	6	32
+	.	+	+	1	.	.	.	.	.	.	.	.	5	26
.	.	.	+	.	.	+	+	.	.	.	.	.	4	21
.	.	.	.	.	.	+	.	.	+	.	.	.	3	16
.	+	+	.	.	.	.	.	+	.	.	.	.	3	16
+	.	.	.	.	.	.	.	.	.	.	.	.	1	5
+	+	.	+	+	+	.	.	+	+	.	.	+	11	58
+	1	.	.	+	.	+	+	1	.	.	+	.	11	58
.	+	.	.	.	.	.	.	.	.	.	.	.	2	11
.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
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.	.	.	.	.	.	.	.	.	.	+	.	.	3	16
.	.	.	.	.	.	.	.	+	.	.	.	.	3	16
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1	.	1	+	+	+	1	1	1	2	2	1	1	17	89
+	1	+	+	+	+	+	+	+	.	.	.	+	12	63
+	.	.	.	.	.	+	.	.	+	+	.	.	6	32
.	+	.	+	.	+	.	.	.	.	.	+	.	4	21
.	.	.	.	.	.	.	.	+	.	.	+	.	3	16
.	.	.	+	+	.	.	.	.	.	.	.	.	3	16
.	.	.	.	+	+	.	.	.	.	.	.	+	3	16
.	+	.	.	.	.	.	.	.	.	.	.	.	1	5
.	.	.	.	+	.	.	.	.	.	.	.	.	1	5

Successive number of relevé (Zaporedna številka popisa)		1	2	3	4	5	6
MA	<b><i>Molinio-Arrhenatheretea</i></b>						
	<i>Trifolium pratense</i>	E1	.	.	+	.	.
	<i>Trifolium repens</i>	E1	.	.	+	+	.
	<i>Prunella vulgaris</i>	E1	.	.	+	+	.
	<i>Cerastium holosteoides</i>	E1	.	+	.	.	+
	<i>Ranunculus acris</i>	E1	.	.	.	.	.
	<i>Veronica chamaedrys</i>	E1	.	.	.	.	.
	<i>Luzula campestris</i>	E1	.	.	.	.	.
	<i>Leontodon hispidus</i>	E1	2	.	+	.	.
	<i>Plantago lanceolata</i>	E1	.	.	+	.	.
SM	<b><i>Stellarietea mediae</i></b>						
	<i>Myosotis arvensis</i>	E1	+	.	.	.	.
QF	<b><i>Fagetalia sylvaticae, Querco-Fagetea</i></b>						
	<i>Anemone nemorosa</i>	E1	.	.	1	+	1
	<i>Veronica officinalis</i>	E1	.	+	+	.	+
	<i>Cruciata glabra</i>	E1	.	.	.	.	.
	<i>Knautia drymeia</i>	E1	+	.	.	.	.
	<i>Hieracium lachenalii</i>	E1	.	.	.	.	.
EP	<b><i>Rhododendro hirsuti-Ericetalia carneae, Erico-Pinetea</i></b>						
	<i>Erica carnea</i>	E1	.	.	.	.	.
	<i>Carex ornithopoda</i>	E1	.	.	.	.	.
	<i>Pinus mugo</i>	E1	.	.	.	.	.
AG	<b><i>Alnetea glutinosae</i></b>						
	<i>Salix aurita</i>	E1	.	.	.	.	.
O	<b>Other species (Druge vrste)</b>						
	<i>Asperula</i> sp.	E1	.	.	.	.	.
ML	<b>Mosses and lichens (Mahovi in lišaji)</b>						
	<i>Cetraria islandica</i>	E0	.	+	.	+	+
	<i>Polytrichum</i> sp.	E0	.	.	.	2	+
	<i>Cladonia</i> sp.	E0	.	.	.	2	+
	<i>Cladonia crispata</i>	E0	.	.	.	.	+
	<i>Cladonia furcata</i>	E0	.	.	.	.	+
	<i>Cladonia portentosa</i>	E0	.	.	.	.	+
	<i>Polytrichum commune</i>	E0	.	.	.	.	.
	<i>Cladonia rangiferina</i>	E0	.	.	.	.	.

### Legend-Legenda

ID	Igor Dakskobler	Gr	Gravel – prod
BV	Branko Vreš	Dy	Dystric brown soil – Distrična rjava tla
BA	Brane Anderle	DyRa	Dystric ranker – Distrični ranker
BZ	Branko Zupan	LBS	Leached brown soil (Luvisol) – Izprana rjava tla (luvisol)
AS	Andrej Seliškar	JA	Julian Alps – Julijske Alpe
L	Limestone – Apnenec	Pr.	Presence (number of relevés in which the species is presented) – število popisov, v katerih se pojavlja vrsta
D	Dolomite – Dolomit	Fr.	Frequency in % - frekvenca v %
Ch	Chert – Roženec		
M	Marlstone – Laporovec		

7	8	9	10	11	12	13	14	15	16	17	18	19	Pr.	Fr.
+	+	1	+	+	+	+	+	+	+	+	.	+	14	74
+	.	.	+	.	.	.	.	.	+	+	+	.	7	37
.	+	+	.	.	.	.	.	.	.	.	+	+	6	32
+	.	.	.	.	.	.	.	.	.	.	.	+	4	21
+	.	.	+	+	+	.	.	.	.	.	.	.	4	21
.	.	.	.	+	+	+	.	.	.	.	.	+	4	21
.	.	+	.	+	.	.	.	.	+	.	.	.	3	16
.	.	.	.	.	.	.	.	.	.	.	.	.	2	11
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.	.	.	.	.	.	.	.	.	.	.	.	.	1	5
1	+	1	2	2	1	1	.	+	1	1	+	1	16	84
.	+	.	+	.	.	.	.	.	.	.	.	.	5	26
+	+	.	.	.	.	.	+	.	+	.	.	.	4	21
.	+	.	.	.	.	.	.	.	.	.	.	.	2	11
.	.	1	.	.	+	.	.	.	.	.	.	.	2	11
+	.	.	+	.	.	.	.	.	.	+	.	.	3	16
.	.	.	.	.	.	.	.	.	.	.	+	+	2	11
.	.	.	.	+	.	.	.	.	.	.	.	.	1	5
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