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LITTER-RAKING FORESTS IN SE SLOVENIA AND IN CROATIA

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Abstract
The standard Braun-Blanquet method was used for sampling litter-raking vegetation in southeastern Slovenia (Suha krajina, Bela krajina, Kočevsko) and in the border region in Croatia. Relevés were classified with the TWINSPAN program and two associations were separated: *Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994 and *Molinio-Quercetum* Šugar 1972. Both communities are the result of intensive litter collecting (and other human impacts). The first one thrives on carbonate bedrock, while the second is limited on silicate bedrock, as is reflected in its specific floristic composition. Due to abandonment of litter collecting these stands are in progressive successional development, and typical variants are becoming rare and endangered.
Keywords: litter-raking, phytosociology, *Molinio-Quercetum, Pteridio-Betuletum.*

Izvleček
S standardno Braun-Blanquetovo metodo smo vzorčili steljniško vegetacijo v jugovzhodni Sloveniji (Suha krajina, Bela krajina, Kočevsko) in na mejnem območju s Hrvaško. Popisno gradivo smo klasificirali s programom TWINSPAN in ločili dve asociaciji: *Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994 in *Molinio-Quercetum* Šugar 1972. Obe združbi sta nastali zaradi intenzivnega steljarjenja. Prva uspeva na karbonatni podlagi, druga je vezana na silikatne kamnine, kar se odraža v floristični sestavi. Zaradi opuščanja steljarjenja sta obe združbi podvrženi progresivnemu sukcesijskemu razvoju in sta v tipični obliki vedno bolj redki in ogroženi.
Ključne besede: fitosociologija, *Molinio-Quercetum, Pteridio-Betuletum*, steljarjenje.

1. INTRODUCTION

Grazing on land for common use, and later litter collecting was very widespread in southeast Slovenia. In Central Europe it is known that farmers had collected litter for dunging their fields since the Iron age (Ellenberg 1996). Intensive litter-raking started at the end of the 18th century and became widely spread in the middle of the 19th century, when farming changed from free grazing to stockbreeding in stables. In Bela krajina, due to intensive human impact, an open cultural landscape was established at c. 900 cal. BP (Andrič 2007), but the need for litter changed the landscape drastically. As in western Europe heathlands became common, in southeastern Europe sparse birch woodlands appeared.

Litter-raking wood is a result of extensive management and is a degradation of forest vegetation and soil. Farmers used to cut bracken and heather, and also raked leaves of trees at the site. Occasionally they also cut some trees. Litter was not always transported to the farm, farmers put it on a heap with a single tree as a support, and the tree often died back after litter was removed. In this way they maintained a balance of sparse tree structure in the litter-raking wood and also the physiognomical appearance of this ecosystem (Štublar 1981).

Bracken (*Pteridium aquilinum*) is a characteristic plant (besides birch *Betula pendula*) in litter-raking wood communities. But its increased abundance within this ecosystem is recent, as the function of these sites was different in the past (Štublar 1981). As mentioned, these sites were grazed throughout

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the season, and livestock destroyed the bracken that emerges in late April. Nowadays bracken is common and the local inhabitants name it as litter in the broader sense. Nevertheless bracken is not as problematic as in the United Kingdom (Mitchell et al. 1997, Marrs et al. 2000), where it is considered as a weed species. It causes problems for a wide range of land management options: it has a competitive effect on regenerating trees, invades different rare habitats, influences succesional pathways etc. Probably it is less problematic in Slovenia due to the low winter temperatures.

Vegetation scientists first noticed birch forests when vegetation surveys for cartographic purposes took place in the region, but syntaxon *Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994 was merely used as a cartographic unit (Jovanović et al. 1986). Several authors studied birch stands in the framework of successional series towards vegetation climax (Wraber 1956, Piskernik 1962, Miklavžič 1965, Košir 1998). These forests were also considered in habitat typology as Illyrian birch woods (Robič 2002). Syntaxonomically these forests were validated only recently by Trinajstić (2004), while *Quercus* and *Betula* which dominated litter-raking forests on silicate bedrock were provisionally classified as *Molinio-Quercetum* Šugar 1972 (Kutnar 1996).

The aim of our study is syntaxonomically to classify litter-raking woods in southeastern Slovenia (and the neighbouring region in Croatia), that were neglected in syntaxonomical surveys and that are endangered in recent years due to the abandonment of traditional management.

2. METHODS

Vegetation was studied according to the Central European method (Braun-Blanquet 1964, Westhoff & van der Maarel 1978). The nomenclature of plants is according to Martinčič & al. (2007) and mosses according to Martinčič (2003). Relevés are stored in the TURBOVEG database (Hennekens & Schaminée 2001).

Table editing and Ellenberg indicator values (Ellenberg et al. 1992) were calculated in JUICE 6.5 (Tichý 2002). Detrended Canonical Analysis (DCA) was made by CANOCO (ter Braak & Šmilauer 2002). Species cover values were transformed into percentages, and TWINSPAN (Hill 1979) was used for classification of the whole dataset and delimitation of lower syntaxonomical units of *Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994. Default values of cut levels (0, 5 and 25) and 3 pseudospecies cut levels were used.

3. STUDY AREA

The study took place in southeastern Slovenia (Suha krajina, Bela krajina, Kočevsko) that belongs to the karstic region in SE Slovenia and in Croatia at the border region with Slovenia (between the villages of Pravutina and Mrzljaki) (Figure 1). The study area is classified within the Predinaric and Dinaric phytogeographical region. Also a sub-Pannonian influence is evident in Bela krajina (Wraber 1969). Characteristics of areas under consideration are presented in Table 1 (Perko & Orožen Adamič 1998).

Potential natural vegetation of the study area is heterogeneous: *Abio albae-Carpinetum* Marinček 1994 in Bela krajina, *Hacquetio-Fagetum* Košir 1962 (incl. *Hedero-Fagetum* Košir 1994) in Suha krajina, *Omphalodo-Fagetum* (Tregubov 1957) Marinček et al. 1993 in Kočevsko and *Blechno-Fagetum* Horvat ex Marinček 1970 near the village of Ajbelj (Marinček & Čarni 2002).

Table 1: Characteristics of researched areas.
Tabela 1: Značilnosti raziskovanih območij.

	Bedrock	Soil	Climate	Precipitation	Temperature
Suha krajina	limestone (cretaceous and jurassic)	Distric-Chromic Cambisol	moderate continental	1000–1300 mm	average annual 8 °C January –2.4 °C July 17.6 °C
Bela krajina and area between Pravutina and Mrzljaki (Croatia)	limestone and dolomite	eutric brown soils and Terra Rossa	Pannonian	1200–1300 mm	average annual 10.2 °C
Kočevsko	limestone (triassic) and siliceous conglomerate	Distric-Chromic Cambisol and ranker	moderate continental and mountain	1600 mm	average annual 7.9 °C January –2.8 °C July 17.9 °C

Figure 1: Study area. **Slika 1:** Raziskovano območje.

4. RESULTS AND DISCUSSION

TWINSPAN classification distinguished two groups of relevés corresponding to the two associations at first level. The first group comprises relevés belonging to the association *Molinio-Quercetum* Šugar 1972. The second group (comprising relevés belonging to the association *Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994) was divided into another two levels according to the successional stages of the association.

Two distinctive groups of relevés were also detected by DCA ordination (Figure 3). The first group comprises relevés with dominant *Betula pendula* and the second with codominance of *Betula*

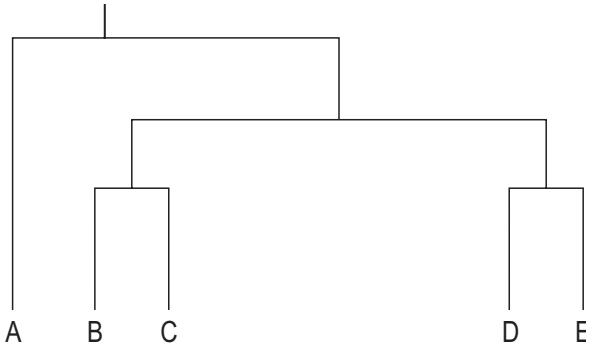

Figure 2: TWINPAN dendrogram. Table 4: A – relevés 31–35, B – relevés 1–4, C – relevés 5 – 10, D – relevés 11–15, E – relevés 16–30.
Slika 2: TWINPAN dendrogram. Tabela 4: A – popisi 31–35, B – popisi 1–4, C – popisi 5–10, D – popisi 11–15, E – popisi 16–30.

pendula and *Quercus petraea*. According to floristic composition, the first group of relevés was classified as *Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994, and the second group as *Molinio-Quercetum* Šugar 1972.

The results from the first two axes (Figure 3) show that samples of different forms of *Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994 are grouped together; it is evident that there are differences in nutrients, reaction and light Ellenberg indicator values between older and younger successional stages. Successionally older stands group in the upper left part of the diagram and Ellenberg values indicate more nutrient rich and wet stands.

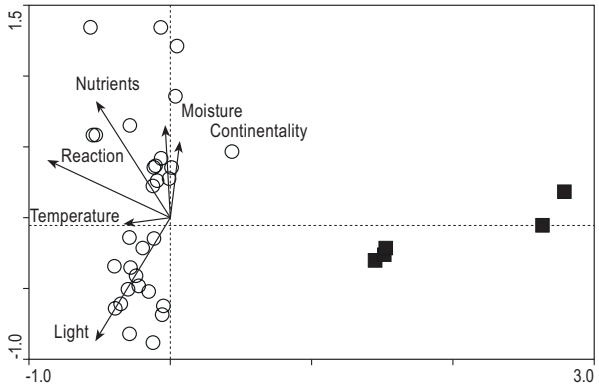

Figure 3: DCA analysis of floristic composition. Ellenberg indicator values are passively projected onto the diagram. Circle-*Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994, square-*Molinio-Quercetum* Šugar 1972.

Slika 3: DCA analiza floristične sestave. Ellenbergove indikacijske vrednosti so pasivno projicirane na ordinacijski diagram. Krog-*Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994, kvadrat-*Molinio-Quercetum* Šugar 1972.

Table 2: Ellenberg indicator values, calculated as mean unweighted value.

Tabela 2: Ellenbergove indikatorske vrednosti izračunane kot netehtano povprečje.

	Light	Temperature	Continentality	Moisture	Soil Reaction	Nutrients
Pteridio-Betuletum	6.32	5.36	3.74	4.82	5.04	3.47
Molinio-Quercetum	6.07	5.07	3.79	4.73	3.28	2.79

Ecological indicator values (Table 2) show that both communities are found on acid sites and are poor in nutrients. There is an evident difference in some ecological conditions between both associations; *Molinio-Quercetum* Šugar 1972 is found on more acidophilic and more nutrient poor sites.

***Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994**

Table 4: 1–30

Ecological conditions

The community thrives on limestone bedrock. Soils are degraded by raking of litter, mowing, grazing, removal of organic matter, and sometimes even fire. Soils are podzols. Soil characteristics are presented in Table 3. In recent times litter is being less used as bedding for animals, and sites are mown once a year or even less often, while in the past they were regularly grazed throughout the vegetation period. Litter is removed from the site and this leads to depletion of soils and acidification.

Table 3: Soil characteristics in upper 10 cm layer in relevés from Drašiči (Čarni et al. 2007).

Tabela 3: Značilnosti tal v zgornjih 10 cm v popisih iz Drašičev (Čarni et al. 2007).

pH	4.18 ± 0.08
P_2O_4	1.08 ± 0.24
K_2O	14.56 ± 2.89
Org. matter	7.06 ± 3.72
Org. C	4.1 ± 2.14
C : N	14.18
N	0.28 ± 0.03
Ca^{2+}	1.6 ± 0.61
Mg^{2+}	0.51 ± 0.18
K^+	0.31 ± 0.07
Na^+	0.06 ± 0.01
H^+	2.5 ± 0.38

Floristic composition

Species richness in stands ranges from 25 to 63 species per 100 m^2, a plot with 38 species on average (Table 4).

Diagnostic species are *Betula pendula* in the tree layer and *Pteridium aquilinum* in the herb layer that also dominates the stands, although Trinajstić (2004) mentions only *Betula pendula* as characteristic species.

The tree layer is loose dense and rarely closed. Farmers when mowing for litter frequently cut

down individual trees for fire wood, or else birch trees die as they are used for storing litter before transport (Štublar 1981).

The shrub layer is poorly developed, because of mowing and the dense cover of *Pteridium aquilinum*. Only *Frangula alnus* is more abundant.

The herb layer is two layered. *Pteridium aquilinum* dominates in the upper layer and its dense cover and shadow hinders growth of other plants. It can grow up to 2 m. The lower layer is rich in acidophilous species and species characteristic for poor soils (*Calluno-Ulicetea* Br.-Bl. & Tüxen ex Klika & Hadač 1944 and *Quercetalia roboris-petraeae* Tüxen 1931).

Lower syntaxonomic units

The community shows great variability and was further divided with TWINSPAN analysis into variants that correspond also to successional stages.

- *Carpinus betulus* variant (Table 4, 1–4)
  Stands of *Carpinus betulus* variant are successionally the most advanced stands that can be classified within association *Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994. Tree species (e.g. *Carpinus betulus*, *Quercus petraea*) indicate development towards a climax community *Abio albae-Carpinetum* Marinček 1994. Also species of *Rhamno-Prunetea* Rivas Goday et Garb. 1961 are most abundant in this community, while species of *Festuco-Brometea* Br.-Bl. et R.Tx. 1943 and *Calluno-Ulicetea* Br.-Bl. & Tüxen ex Klika & Hadač 1944 are diminishing.
- *Pinus sylvestris* variant (Table 4, 5–10)
  The stands are successionally older. *Pinus sylvestris* in the lower tree and shrub layer indicates a progressive stage of succession (Wraber 1956). Shrub species *Frangula alnus* differentiate later successional stages (*Carpinus betulus* and *Pinus sylvestris* variant) from typical ones.
- *Carex flacca* variant (Table 4, 11–15)
  Within this variant we classify stands that thrive on sites of *Omphalodo-Fagetum* (Tregubov 1957) Marinček et al. 1993 as potential vegetation. Differential species are: *Carex flacca* and *Salvia glutinosa*. *Brachypodium pinnatum* agg. has higher cover. Species characteristic of order *Quercetalia roboris-petraeae* Tüxen 1931 and class *Calluno-Ulicetea* Br.-Bl. & Tüxen ex Klika & Hadač 1944 are poorly present. Stands are found at higher altitudes than for other variants (over 500 m a.s.l.).
- *typical* variant (Table 4, 16–30)
  This variant is found in Bela krajina (Drašiči) and over the border in Croatia, on potential sites of *Abio albae-Carpinetum* Marinček 1994. Sites are regularly managed (mowed and litter raked) and represent the best preserved litter-raking woods in the region. Species of *Quercetalia roboris-petraeae* Tüxen 1931 and *Calluno-Ulicetea* Br.-Bl. & Tüxen ex Klika & Hadač 1944 are abundant, indicating an acidic and nutrient poor site.

  Sites from Suha krajina (Visejec) thrive on potential sites of *Hacquetio-Fagetum* Košir 1962, and species *Quercus cerris* characterizes further successional developement in series *Hacquetio-Quercetum cerris* and *Hacquetio-Fagetum* (Marinček & Šilc 1999).

Syntaxonomy

Birch forests were studied in several studies in the researched area and vicinity (Glišić 1950, Rauš & Vukelić 1986, Vukelić & Španjol 1990, Rauš & Matić 1994, Košir 1998, Exner & Willner 2004), but final syntaxonomical elaboration was made by Trinajstić (2004). Trinajstić classified *Betula* forests into two associations *Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994, and *Populo tremulae-Betuletum*, but they are difficult to distinguish as there are only few character or differential species. This is also shown in Table 5 and in the ordination diagram (Figure 4).

Syntaxonomical classification of overexploited forest stands or semi natural communities that are in quasi-equilibrium is a special case in phytosociology. Even classification into rank of the association is problematic, as some authors claim that these are only short term successional stages. But regular management preserves constant species composition and quasi-equilibrium of the semi natural community. Management maintains the specific floristic composition of the community, and the syntaxonomical category management form (germ. Nutzungform or Agroform) can be used under the rank of the association (Willmans 1989). However, differences in floristic composition appear due to period length between management (or abandonment) and therefore could also be treated as successional stages.

Classification of birch forests is also difficult based strictly on floristic principles. Some authors have classified birch woods into class *Calluno-Ulicetea* Br.-Bl. & Tüxen ex Klika & Hadač 1944 together with heathlands (Wraber 1956). Structural

characteristics of stands should be taken into consideration (Dierschke 1994) as well as the developed tree layer. Therefore, they should be classified into syntaxa comprising forest communities.

***Molinio-Quercetum* Šugar 1972**
Table 4: 31-35

Ecological conditions

Stands thrive on silicate bedrock (Carboniferous and Permian sandstone, siltstone and claystone) (Kutnar 1996), the soil is Dystric Brown Soil (Kutnar & Urbančič 2006). Ellenberg indicator values show most acidic and nutrient poor sites, even compared to stands of *Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994 (Table 2). Stands thrive on slopes with southern apect and considerable inclination.

Kutnar (1996) reports several impacts that play a role in forming of this community, which according to Šugar (1973) is a permanent degradation stage of primary acidophilous beech forests. Beside unfavourable natural conditions degradation processes are due to litter-raking, game grazing and forest fires.

Floristic composition

Stands are species poor (18 species per 100 m^2 on average). Characteristic species of the association according to Šugar (1972) are: *Calamagrostis arundinacea, Hieracium racemosum* and *Molinia caerulea* ssp. *arundinacea*. In researched stands only the latter was found, but *Vaccinium myrtilus* and *Erica carnea* could be also pointed out as diagnostic species.

Betula pendula and *Quercus petraea* dominate in the tree layer, although it has low cover.

Shrubs are poorly developed, not only due to management but also due to harsh ecological conditions. Only dominant tree species are regenerating successfully.

The herb layer is composed mainly of chamaephytic species: *Erica carnea, Calluna vulgaris, Vaccinium myrtillus* and codominant *Molinia caerulea* ssp. *arundinacea*. Other species are rare and they develop only in gaps between dense shrubby cover.

Syntaxonomy

Studies of similar stands have a long history in Slovenia and in neighbournig countries, therefore several classifications were proposed.

Tüxen described two similar associations *Betulo-Quercetum roboris* Tx. 1930 and *Betulo-Quercetum petraeae* Tx. 1937, but Härdtle et al. (1997) combined them into one wide association, that is still under critical revision.

Wallnöfer et al. (1993) classify similar stands in Austria as *Deschampsio flexuosae-Quercetum sessiliflorae* Firbas et Sigmond 1928. For Slovenia Košir (1994) mentions this association for southwestern hilly margins of Pannonia. Later Willner & Grabherr (2007) revised the previous classification and introduced a new division of association with three syntaxa: *Luzulo-Quercetum petraeae* Hilitzer 1932, *Betulo-Quercetum roboris* Tx. 1930 and *Genisto germanicae-Quercetum roboris* Aich. 1933.

In Croatia, Trinajstić (2008) reports on the existence of several associations within a separate class *Quercetea roboris-petraeae* Br.-Bl. et R.Tx. 1943: *Betulo-Quercetum petraeae* Tx. 1937, *Luzulo-Quercetum petreae* (Hilitzer 1932) Passarge 1953, *Hieracio racemosi-Quercetum petreae* Vukelić1991, *Betulo-Quercetum petraeae* Tx. 1937, *Molinio altissimae-Quercetum petraeae* Šugar 1972.

In Slovenia, Košir (1994) classified acidophilous *Quercus petrea* forests in the SW part of the Pannonian region as *Deschampsio flexuosae-Quercetum*, that thrives on silicate bedrock on ranker soil type. It develops progressively into the asociation *Deschampsio-Fagetum*. Puncer & Zupančič (1981) described association *Melampyro vulgati-Quercetum*, which is a degradation stage of the association *Castaneo-Fagetum* Marinček & Zupančič 1995. Kutnar (1996) researched the vegetation of Veliki Mošenik and classifed stands into *Molinio altissimae-Quecetum petraeae* Šugar 1972, that develop as a degradation stage of the association *Blechno-Fagetum* Horvat ex Marinček 1970.

In Table 5 *Betula pendula* and *Quercus petraea* stands (and some other acidophilous *Quercus* forests) from Slovenia and Croatia in the synoptic table as originally classified by the authors are presented. Numerical analysis of the synoptic table is presented in Figure 4, but unfortunately some types were not published with analytical tables (Horvat 1962, Košir 1994) and were therefore omitted from analysis. Relevés separate along the second axis due to different bedrock. In the upper part of the diagram, stands on non-carbonate bedrock are concentrated (classified within *Molinio-Quercetum* Šugar 1972), while in the lower part are stands that thrive on carbonate sites (classified within *Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994 and *Betulo-Quercetum* Šugar 1972). The first axis

represents successional development, on the right side we find more developed stands towards less degraded communities.

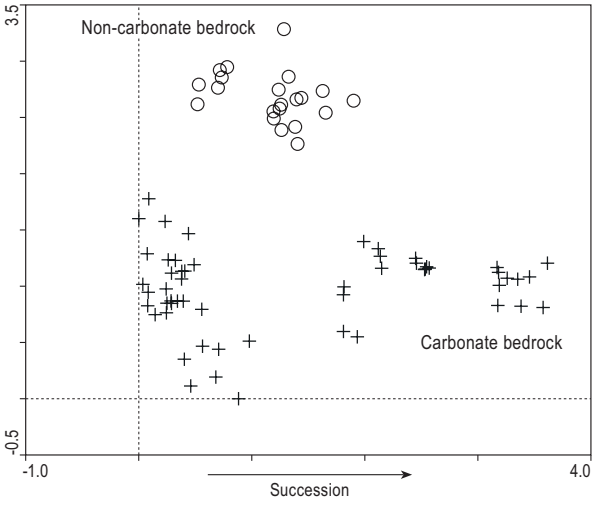

Figure 4: DCA ordination diagram of relevés from Table 5. Circle: *Molinio-Quercetum* (Šugar 1972, Šilc et al. hoc loco), cross: *Pteridio-Betuletum* (Vukelić & Španjol 1990, Rauš & Matić 1994, Trinajstić 2004, Šilc et al. hoc loco), *Populo-Betuletum* (Trinajstić 2004), *Betulo-Quercetum* (Rauš & Vukelić 1986).

Slika 4: DCA ordinacijski diagram popisnega gradiva iz Tabele 5. Krog: *Molinio-Quercetum* (Šugar 1972, Šilc et al. hoc loco), križ: *Pteridio-Betuletum* (Vukelić & Španjol 1990, Rauš & Matić 1994, Trinajstić 2004, Šilc et al. hoc loco), *Populo-Betuletum* (Trinajstić 2004), *Betulo-Quercetum* (Rauš & Vukelić 1986).

5. CONCLUSION

Both communities are endangered as farmers abandon regular litter collecting. *Molinio-Quercetum* Šugar 1972 is rare also because the non-carbonate type of bedrock is rare in this part of Slovenia. Stands of *Pteridio-Betuletum* Trinajstić et Šugar ex Rauš et Matić 1994 are left to succession and we can expect their development towards potential forest vegetation as these stands convert into hornbeam forest in 40 years (Čarni et al. 2007). Therefore some areas were protected as landscape parks and natural monuments, where measures of revitalisation were taken. Some of stands are also used for touristic purposes.

Also some plants protected by Supplement to the Decree on protected wildlife plant species (Official Gazette of the RS, No. 46/04, 110/04, 115/2007), are found in these communities: *Cyclamen purpurascens*, *Dianthus barbatus*, *Helleborus dumetorum* and *Lycopodium clavatum*.

6. ACKNOWLEDGEMENT

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7. APPENDIX

Table number, locality, geographical coordinates, and date of relevés in Table 4:
1. Dragatuš, 518544, 41664, 23. 6. 2004; 2. Dragatuš, 518734, 41815, 23. 6. 2004; 3. Dragatuš, 518659, 41255, 23. 6. 2004; 4. Dragatuš, 518664, 41235, 23. 6. 2004; 5. Dragatuš, 518382, 41570, 23. 6. 2004; 6. Dragatuš, 519191, 41831, 7. 9. 2004; 7. Dragatuš, 519152, 41775, 7. 9. 2004; 8. Dragatuš, 518827, 42119, 7. 9. 2004; 9. Dragatuš, 518812, 42089, 7. 9. 2004; 10. Dragatuš, 519250, 41914, 7. 9. 2004; 11. Štalcerji, 490013, 48116, 1. 8. 2006; 12. Morava, 490262, 44889, 1. 8. 2006; 13. Morava, 490294, 44841, 1. 8. 2006; 14. Mozelj, 497319, 46437, 11. 8. 2006; 15. Mozelj, 497359, 46445, 11. 8. 2006; 16. Croatia, Kunići, 525102, 44465, 7. 7. 2004; 17. Drašiči, 527021, 57916, 1. 7. 2004; 18. Drašiči, 526816, 57712, 6. 7. 2004; 19. Croatia, Mošanci, 524459, 45622, 7. 7. 2004; 20. Drašiči, 527046, 57655, 7. 7. 2004; 21. Drašiči, 526993, 57846, 1. 7. 2004; 22. Croatia, 524793, 46328, 7. 7. 2004; 23. Drašiči, 527176, 57842, 7. 7. 2004; 24. Croatia, 524880, 46894, 7. 7. 2004; 25. Croatia, 524767, 46695, 7. 7. 2004; 26. Visejec, 489752, 73486, 21. 6. 2006; 27. Visejec, 489672, 73225, 5. 7. 2006; 28. Visejec, 489687, 73584, 4. 7. 2006; 29. Visejec, 489779, 73616, 4. 7. 2006; 30. Visejec, 489806, 73620, 4. 7. 2006; 31. Ajbelj, 488662, 43754, 1. 8. 2006; 32. Ajbelj, 488573, 43728, 1. 8. 2006; 33. Ajbelj, 488605, 43714, 1. 8. 2006; 34. Ajbelj, 488644, 43707, 1. 8. 2006; 35. Ajbelj, 488638, 43697, 1. 8. 2006.

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Table 4: Analytical phytosociological table of the associations *Pteridio-Betuletum* Trinajstić & Šugar ex Rauš & Matić 1994 and *Molinio-Quercetum* Šugar 1972.
Tabela 4: Analitska tabela asociacij *Pteridio-Betuletum* Trinajstić & Šugar ex Rauš & Matić 1994 in *Molinio-Quercetum* Šugar 1972.

Table number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
Relevé area (m²)		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
Altitude (m)		192	187	200	200	194	197	201	205	193	193	561	520	520	528	528	210	185	184	190	173	195	170	178	160	160	377	398	401	379	355	660	645	645	660	660	
Aspect		0	0	0	0	0	0	0	0	0	0	S	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	S	S	
Slope (degrees)		0	0	0	0	0	0	0	0	0	0	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	35	30	30	
Cover upper tree layer (%)	A1	30	70	40	30	40	60	40	50	40	50	70	80	60	40	50	75	50	40	80	70	70	40	80	80	70	60	40	25	30	30	50	50	30	30	30	
Cover lower tree layer (%)	A2	40	30	35	50	50	30	40	40	30	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	
Cover shrub layer (%)	B	50	80	40	40	50	30	40	20	30	40	20	20	20	10	10	5	5	15	10	20	3	0	0	50	1	30	5	0	5	0	20	10	50	10	10	
Cover herb layer (%)	C	80	30	50	80	90	80	70	100	80	100	100	60	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	80	75	80	
Cover moss layer (%)	D	10	5	15	20	0	10	8	0	10	2	0	0	1	1	0	0	1	0	0	1	2	2	1	5	1	0	0	3	5	5	0	0	5	5	5	
Ass. *Pteridio-Betuletum*																																					Presence
Pteridium aquilinum	C	1	2	3	3	4	4	4	4	3	4	5	+	.	5	5	4	5	5	5	5	5	3	4	4	5	4	4	4	5	5	3	2	4	3	4	34
Betula pendula	A1	.	3	2	1	3	4	3	3	3	3	4	5	4	2	1	4	3	3	4	4	4	3	3	4	4	4	3	2	2	2	2	2	3	2	2	34
Betula pendula	A2	3	+	.	+	1	+	1	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	10
Betula pendula	B	.	.	.	.	+	.	+	1	+	+	.	2	.	.	+	.	.	.	.	1	+	.	.	+	+	1	.	.	+	.	1	+	.	+	1	17
Betula pendula	C	+	.	+	+	.	1	+	+	1	.	+	+	+	+	.	.	.	.	+	+	.	+	+	.	+	.	.	.	+	.	.	.	+	.	.	18
Ass. *Molinio-Quercetum*																																					
Molinia caerulea ssp. *arundinacea*	C	4	.	2	3	.	2	1	2	3	2	2	1	1	.	.	.	.	.	.	.	.	.	.	.	+	.	1	4	.	1	+	3	3	2	3	20
Erica carnea	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	2	+	2	1	5
Vaccinium myrtillus	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	3	3	1	2	5
Lower syntaxa																																					
Carpinus betulus	A2	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Carpinus betulus	B	2	4	2	+	2	1	+	+	.	+	.	.	.	1	1	+	.	.	.	.	.	.	.	.	.	1	+	.	.	.	.	.	.	.	.	14
Carpinus betulus	C	+	.	.	+	.	+	+	+	.	+	.	.	.	+	.	.	.	+	.	.	.	.	.	.	.	3	3	1	1	+	.	.	.	.	.	13
Pinus sylvestris	A1	.	1	3	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
Pinus sylvestris	A2	.	.	.	.	1	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
Pinus sylvestris	B	.	.	.	.	.	.	.	+	+	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	4
Pinus sylvestris	C	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	2
Carex flacca	C	.	.	.	.	.	.	.	.	.	.	+	+	+	+	1	1	.	.	.	.	.	.	.	.	.	.	+	.	.	+	.	.	.	.	.	8
Salvia glutinosa	C	.	.	.	.	.	.	.	.	.	.	1	.	+	+	+	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	.	6
Quercetalia roboris-petraeae																																					
Festuca filiformis	C	+	.	.	.	+	+	+	+	1	+	.	.	.	.	.	.	+	.	+	+	1	1	1	1	1	1	+	1	2	2	.	.	.	.	.	20
Melampyrum pratense	C	+	.	+	.	+	+	.	.	.	+	.	.	.	.	.	+	3	+	+	2	2	2	+	1	+	.	+	+	+	1	.	.	.	.	.	19

Hieracium umbellatum	C	+	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	1	+	+	1	1	+	1	1	1	.	.	.	.	.	+	.	+	1	1	16
Veronica officinalis	C	.	.	.	.	.	+	+	.	.	.	.	.	+	+	+	+	+	.	.	.	+	+	.	+	+	+	.	+	1	+	.	.	.	.	.	15
Teucrium scorodonia	C	1	.	2	+	3	+	1	.	.	.	.	.	.	.	.	.	.	.	2	.	+	+	.	.	.	.	.	.	.	.	.	+	.	.	1	11
Lathyrus linifolius	C	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	+	+	+	.	.	+	+	+	+	+	.	.	.	.	.	11
Quercus robur	A1	.	.	.	.	.	.	.	+	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Quercus robur	A2	.	.	.	.	.	+	+	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4
Quercus robur	B	.	.	.	.	.	+	1	.	1	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	5
Quercus robur	C	.	.	.	.	.	+	+	+	+	2	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6
Holcus mollis	C	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	4
Inula hirta	C	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	3
Chamaecytisus hirsutus	C	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	2
Hieracium sabaudum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	2
Querco-Fagetea																																					
Quercus petraea	A1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	2	.	1	1	5
Quercus petraea	A2	1	2	2	3	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6
Quercus petraea	B	+	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	+	.	.	.	.	1	+	.	+	.	9
Quercus petraea	C	+	.	1	+	+	+	.	.	.	.	+	+	+	+	+	+	.	.	+	+	+	+	+	+	+	.	1	+	+	.	+	+	1	+	+	26
Prunus avium	B	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Prunus avium	C	.	.	.	.	+	.	.	.	+	.	.	.	.	.	.	.	+	+	+	+	.	.	+	.	+	+	.	.	+	.	.	.	.	.	.	10
Rubus fruticosus agg.	B	.	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Rubus fruticosus agg.	C	.	.	1	2	.	.	+	.	.	+	.	.	.	+	.	.	.	+	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	8
Quercus cerris	A1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Quercus cerris	A2	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Quercus cerris	B	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	2
Quercus cerris	C	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	1	+	.	.	.	.	.	5
Rosa arvensis	C	.	.	.	.	.	.	.	+	.	+	+	.	.	.	.	+	.	.	.	+	.	.	.	.	+	.	.	+	.	.	.	.	.	.	.	7
Carex montana	C	.	.	.	.	.	.	.	.	.	.	1	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	1	.	.	.	.	.	7
Hedera helix	C	.	.	+	.	.	.	.	.	+	.	.	.	.	+	+	+	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	6
Viola reichenbachiana	C	.	.	.	.	.	.	+	.	+	.	.	.	+	.	.	+	.	.	+	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	6
Acer pseudoplatanus	C	.	+	.	.	.	.	.	.	.	.	+	+	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	6
Carex sylvatica	C	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	+	+	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	5
Tilia cordata	B	.	.	.	.	.	.	.	.	.	+	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	4
Tilia cordata	C	.	.	.	.	.	.	.	+	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	5
Castanea sativa	A2	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Castanea sativa	B	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
Castanea sativa	C	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	+	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4
Helleborus dumetorum	C	.	.	.	.	.	.	.	.	.	.	+	+	.	+	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4
Gentiana asclepiadea	C	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4
Omphalodes verna	C	.	.	.	.	.	.	.	.	.	.	.	1	1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
Euphorbia carniolica	C	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	3

Table number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	Pr.
Primula vulgaris	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	3
Sorbus torminalis	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	+	.	.	.	.	.	.	.	.	3
Hypericum montanum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	.	.	.	.	.	.	.	3
Rosa arvensis	B	.	.	.	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Epimedium alpinum	C	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Fragaria moschata	C	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	2
Asarum europaeum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	2
Luzula luzuloides	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	2
Convallaria majalis	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	2	.	.	.	2
Festuca heterophylla	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	.	2
Senecio ovatus	C	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Anemone nemorosa	C	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Fagus sylvatica	B	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Sorbus torminalis	B	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Athyrium filix-femina	C	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Cephalanthera damasonium	C	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Fraxinus ornus	C	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Cephalanthera longifolia	C	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Daphne mezereum	B	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Carex digitata	C	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Polygonatum multiflorum	C	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Euphorbia amygdaloides	C	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Cyclamen purpurascens	C	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Acer obtusatum	B	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Acer obtusatum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Acer campestre	B	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Helleborus odorus	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Brachypodium sylvaticum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Hieracium murorum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	1
Stachys sylvatica	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	1
Rosa gallica	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	1
Euphorbia dulcis	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	1
Sorbus aria	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1
Calluno-Ulicetea																																					
Potentilla erecta	C	1	+	+	+	2	1	2	1	2	1	+	+	+	2	1	1	1	+	+	1	.	.	1	1	+	3	2	2	2	2	.	.	+	.	.	29
Agrostis tenuis	C	.	+	+	+	.	1	+	+	+	+	1	+	1	2	2	+	1	1	1	2	2	2	2	2	2	.	1	+	1	+	.	.	.	.	.	27
Carex pallescens	C	+	.	+	+	+	+	+	.	.	.	.	.	+	+	+	+	1	1	.	+	+	.	+	+	+	3	2	1	2	1	.	.	.	.	.	22
Danthonia decumbens	C	.	.	.	.	1	+	2	+	1	.	.	.	.	.	.	+	2	.	2	+	1	1	+	+	+	3	+	1	2	2	.	.	.	.	.	19
Calluna vulgaris	C	1	.	.	.	.	.	.	.	+	+	.	.	.	.	.	1	1	.	.	.	2	3	2	.	2	+	4	1	.	3	+	1	2	2	2	18

Carex pilulifera	C	+	.	+	+	+	1	1	+	+	+	.	.	.	1	2	+	.	.	+	.	.	.	.	+	.	+	.	.	+	.	.	.	.	+	.	17
Luzula campestris	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	.	.	+	1	1	+	+	1	.	+	.	1	+	.	.	.	.	.	11
Viola canina	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	+	+	+	+	+	+	.	+	+	+	.	.	.	.	.	11
Chamaespartium sagittale	C	+	.	.	.	.	.	.	.	+	.	.	.	.	.	.	+	+	.	.	.	+	.	+	.	.	.	+	+	+	+	.	.	.	.	.	10
Chamaecytisus supinus	C	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	+	+	.	.	.	+	+	.	+	+	.	.	.	.	.	.	.	.	.	.	8
Genista pilosa	C	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	+	+	.	+	.	.	+	.	.	+	.	.	.	.	.	+	.	.	.	.	8
Genista germanica	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	1	+	+	+	.	.	.	.	.	6
Thymus pulegioides	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	+	.	.	.	+	.	.	.	.	1	.	.	.	.	.	5
Lycopodium clavatum	C	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	+	.	+	.	.	.	.	.	.	5
Rumex acetosella	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	.	.	1	.	.	.	.	.	.	.	.	.	.	4
Polygala vulgaris	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	.	.	.	+	+	.	.	.	.	.	4
Nardus stricta	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	+	.	.	.	.	.	.	2
Hieracium pilosella	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Arnica montana	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	1
Luzula multiflora	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1
Festuco-Brometea																																					
Brachypodium pinnatum agg.	C	.	.	.	+	1	.	1	2	+	1	3	2	2	2	3	2	+	2	1	2	.	.	+	.	.	2	1	+	1	.	.	.	.	.	.	21
Solidago virgaurea	C	.	.	.	.	.	.	+	.	.	.	.	.	.	+	.	.	+	.	+	+	+	+	+	+	+	1	+	+	+	+	.	.	.	.	.	15
Galium verum	C	.	.	.	.	.	.	.	.	.	.	+	.	.	1	+	+	+	+	.	+	.	+	.	+	.	1	1	1	+	1	.	.	.	.	.	14
Pimpinella saxifraga	C	.	.	.	.	.	.	.	.	.	+	.	.	.	+	+	.	+	+	.	+	.	+	+	.	+	.	+	+	+	+	.	.	.	.	.	13
Euphorbia cyparissias	C	.	.	.	.	.	.	.	+	.	.	.	.	.	.	2	.	+	1	.	+	.	.	+	.	.	+	+	+	+	+	.	.	.	.	.	11
Peucedanum oreoselinum	C	.	.	.	.	+	.	.	.	.	.	+	1	.	.	.	1	+	.	.	+	.	.	.	.	.	.	.	+	.	1	.	.	.	.	.	8
Clinopodium vulgare	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	+	+	.	+	+	+	+	.	.	.	.	.	8
Centaurea pannonica	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	+	.	+	+	+	+	+	.	.	.	.	.	7
Carex caryophyllea	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	+	+	1	.	.	+	.	.	.	.	.	.	+	+	.	7
Fragaria vesca	C	+	+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	6
Hypericum perforatum	C	.	.	.	.	.	.	.	.	.	.	+	.	+	.	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	6
Teucrium chamaedrys	C	.	.	.	r	.	.	.	.	.	.	.	.	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	5
Hieracium praealtum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	4
Filipendula vulgaris	C	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	3
Lembotropis nigricans	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	3
Dorycnium germanicum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	+	.	.	+	.	.	.	.	.	3
Trifolium montanum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	+	.	.	.	.	.	3
Prunella laciniata	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	2
Euphrasia rostkoviana	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	+	.	.	.	.	.	.	2
Hypochaeris maculata	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	2
Carlina vulgaris	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	2	.	.	.	.	.	.	2
Koeleria pyramidata	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	2
Agrimonia eupatoria	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Cnidium silaifolium	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1

Table number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	Pr.
Vincetoxicum hirundinaria	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	1
Euphorbia verrucosa	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	1
Helianthemum nummularium ssp. *obscurum*	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	1
Leucanthemum vulgare	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	1
Molinio-Arrhenatheretea																																					
Betonica officinalis	C	.	.	.	.	+	.	.	.	.	+	+	+	1	.	.	+	.	.	+	+	.	.	+	.	.	.	.	+	.	.	.	.	.	.	.	10
Anthoxanthum odoratum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	+	.	.	+	+	.	+	.	1	+	+	+	1	.	.	.	.	.	10
Achillea millefolium	C	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	+	.	.	+	.	+	.	.	.	+	+	+	.	+	.	.	.	.	.	9
Prunella vulgaris	C	.	.	.	.	.	.	.	.	+	.	.	+	+	+	+	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	7
Galium mollugo	C	.	.	.	.	.	.	.	.	.	.	.	.	+	+	1	+	.	+	.	+	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	7
Dactylis glomerata	C	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	+	.	.	.	.	.	.	.	.	.	.	.	+	+	+	.	.	.	.	.	7
Festuca rubra	C	.	.	+	.	.	.	.	.	.	.	.	.	+	.	.	+	.	+	.	.	.	.	+	.	.	.	+	.	.	.	.	.	.	.	.	6
Ranunculus nemorosus	C	.	.	.	.	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	+	.	+	.	.	.	.	.	6
Centaurea jacea	C	.	.	.	.	.	.	.	+	.	.	.	+	.	.	+	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5
Genista tinctoria	C	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	+	.	.	.	.	.	1	.	.	.	.	+	.	.	+	5
Holcus lanatus	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	.	.	.	.	+	.	.	.	+	+	.	.	.	.	.	5
Platanthera bifolia	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	+	+	+	+	.	.	.	.	.	5
Galium boreale	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	+	+	+	+	.	.	.	.	.	5
Lathyrus pratensis	C	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	.	.	.	.	.	4
Centaurea macroptilon	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	4
Stellaria graminea	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	+	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4
Taraxacum officinale agg.	C	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	3
Ajuga reptans	C	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	+	.	.	.	.	3
Lotus corniculatus	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	3
Campanula patula	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	3
Vicia cracca	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	+	.	.	.	+	.	.	.	.	.	3
Succisa pratensis	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	1	.	.	.	.	.	.	.	.	3
Gentiana pneumonanthe	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	.	.	.	.	.	.	.	3
Trifolium pratense	C	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	2
Hypochaeris radicata	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Leontodon hispidus	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	2
Poa trivialis	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Serratula tinctoria	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	2
Selinum carvifolia	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	+	.	.	.	.	.	.	.	.	2
Filipendula ulmaria	C	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Ranunculus acris	C	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Ranunculus bulbosus	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Valeriana officinalis	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	1

Veronica barrelieri	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	1
Poa pratensis	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	1
Plantago media	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	1
Trifolio-Geranietea																																					
Cruciata glabra	C	+	+	+	+	+	1	1	1	1	+	.	+	+	1	1	+	1	+	+	+	1	+	+	+	+	1	+	+	.	+	.	.	.	.	.	28
Origanum vulgare	C	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Viola hirta	C	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Trifolium medium	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	1
Campanula persicifolia	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	1
Thesium bavarum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	1
Rhamno-Prunetea																																					
Frangula alnus	A2	.	.	.	+	+	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4
Frangula alnus	B	2	1	2	2	2	1	2	1	2	1	.	.	+	+	+	.	+	1	1	.	+	.	.	+	.	1	+	.	.	.	1	.	.	.	.	21
Frangula alnus	C	+	.	1	.	.	+	.	+	+	.	.	+	.	.	.	+	.	3	1	1	+	.	+	+	+	.	.	.	+	.	.	.	.	.	.	15
Populus tremula	A1	.	1	+	2	.	+	.	1	+	.	.	.	.	1	2	.	.	.	.	.	.	.	1	.	+	.	.	.	.	+	.	.	.	.	.	11
Populus tremula	A2	.	.	.	.	2	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
Populus tremula	B	+	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	5
Populus tremula	C	+	.	+	.	+	.	.	.	.	.	.	.	.	.	+	.	.	.	+	+	.	+	+	.	+	2	1	+	2	+	.	.	+	+	.	16
Crataegus monogyna	B	.	+	+	1	+	+	+	+	+	+	1	2	+	1	1	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	16
Crataegus monogyna	C	.	.	+	+	+	+	.	.	.	.	+	+	.	.	.	.	.	.	+	+	.	.	+	.	.	.	+	+	+	+	.	.	.	.	.	13
Corylus avellana	A1	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Corylus avellana	A2	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Corylus avellana	B	2	+	1	+	+	.	+	1	1	+	.	+	2	.	.	+	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	14
Corylus avellana	C	+	.	.	.	.	.	.	+	.	+	.	+	.	.	.	+	.	.	+	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	7
Prunus spinosa	B	.	.	.	1	.	.	.	.	.	+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
Prunus spinosa	C	.	+	.	+	.	.	.	.	.	.	.	+	.	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5
Ligustrum vulgare	B	.	+	.	.	.	.	.	.	.	+	.	.	+	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5
Ligustrum vulgare	C	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
Pyrus pyraster	A2	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Pyrus pyraster	B	.	.	+	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	4
Pyrus pyraster	C	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	+	.	.	.	+	5
Berberis vulgaris	B	.	.	.	.	.	.	.	.	.	.	.	.	.	+	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Berberis vulgaris	C	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Clematis vitalba	C	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Rhamnus cathartica	B	.	.	.	.	+	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Rhamnus cathartica	C	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Juniperus communis	B	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	2
Juniperus communis	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Cornus sanguinea	B	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Cornus sanguinea	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1

Table number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	Pr.
Euonymus europaea	B	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Euonymus europaea	C	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Viburnum lantana	C	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Tamus communis	C	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Viburnum opulus	B	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Viburnum opulus	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	1
Other																																					
Picea abies	A1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	1
Picea abies	B	+	+	1	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	+	.	.	+	8
Picea abies	C	+	.	+	+	.	+	+	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	+	.	.	+	+	.	.	.	.	.	10
Fragaria sp.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	+	.	.	1	+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	6
Eupatorium cannabinum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	+	.	+	.	+	+	.	.	.	.	.	.	5
Festuca sp.	C	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	3
Dianthus barbatus	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
Thymus sp.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	1	.	.	.	.	.	.	3
Salix caprea	A2	.	.	.	.	.	.	1	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Salix caprea	B	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Salix caprea	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Sorbus aucuparia	B	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	1
Sorbus aucuparia	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	+	2
Alnus glutinosa	A1	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Alnus glutinosa	A2	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Cirsium vulgare	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	2
Veronica chamaedrys	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	2
Galeopsis sp.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Erigeron annuus ssp. *strigosus*	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	2
Carex sp.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	+	2
Salix rosmarinifolia	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.	.	2
Robinia pseudacacia	A1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	2
Robinia pseudacacia	B	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	2
Brachypodium sp.	C	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Rhamnus saxatilis	C	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Juncus tenuis	C	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Epilobium collinum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Rubus caesius	B	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Lathyrus sp.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Erigeron annuus ssp. *annuus*	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Hypericum barbatum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Platanthera sp.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	1

Rosa sp.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	1
Carex pulicaris	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	1
Cirsium pannonicum	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	1
Calamagrostis sp.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	1
Mosses																																				
Pleurozium schreberi	D	+	+	2	1	.	1	+	.	+	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	+	.	.	.	+	+	.	1	.	1	.	14
Polytrichum formosum	D	+	.	+	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	.	1	+	.	.	.	+	.	.	.	.	1	1	11
Atrichum undulatum	D	+	+	.	1	.	+	+	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	.	9
Scleropodium purum	D	.	.	+	+	.	+	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	.	+	.	+	.	9
Hypnum cupressiforme	D	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	+	+	1	5
Leucobryum glaucum	D	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	+	+	+	5
Mnium hornum	D	+	+	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
Dicranum sp.	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	3
Dicranodontium denudatum	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	+	3
Ctenidium molluscum	D	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	2
Rhytidiadelphus triquetrus	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	2
Pogonatum aloides	D	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Thuidium tamariscinum	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Hylocomium splendens	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Dicranum polysetum	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Plagiomnium undulatum	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	1
Polytrichum sp.	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	1
Eurhynchium angustirete	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	1

Table 5: Synoptic table of *Betula pendula* and acidophilous *Quercus* forests with constancy and median cover.
Tabela 5: Sinoptična tabela brezovih in kisloljubnih hrastovih gozdov z prisotnostjo in srednjo pokrovnostjo.

	Group No.		1	2	3	4	5	8	9	10	11	12	13
	No. of relevés		30	3	4	10	5	3	-	-	5	15	14
Ass. 1	***Pteridio-Betuletum***												
	Pteridium aquilinum	C	97 4	3 5	2 2	60 1	20 3	1 5	+	.	100 3	87 1	100 1
	Betula pendula	A1	97 3	3 5	4 4	100 4	100 3	3 4	+	I +	100 2	20 +	.
	Betula pendula	A2	33 1	.	.	.	.	.	.	.	.	.	
	Betula pendula	B	43 +	.	1 2	.	.	1 2	.	.	80 +	7 1	14 +
	Betula pendula	C	57 +	.	.	.	.	.	.	.	20 +	.	.
Ass. 2	***Populo-Betuletum***												
	Populus tremula	A1	37 1	1 1	2 1	50 1	100 1	2 1	.	.	.	.	.
	Populus tremula	A2	10 +	.	.	.	.	.	.	.	.	.	.
	Populus tremula	B	17 +	3 +	4 +	30 +	80 +	3 1	.	.	.	7 +	.
	Populus tremula	C	47 +	.	1 +	.	60 +	1 +	.	.	40 +	.	.
Ass. 3	***Deschampsio flexuosae-Quercetum (syn. Betulo-Quercetum)***												
	Deschampsia flexuosa	C	.	.	.	.	.	.	+	V 3	.	.	
Char. Ass. 4	*Luzula luzuloides*	C	3 +	1 2	3 1	40 +	60 1	3 1	+	V 1	20 +	87 1	71 2
	Hieracium murorum	C	3 +	1 +	3 +	.	60 +	3 +	+	III +	.	47 1	86 +
diff. Ass. 4	*Vaccinium myrtillus*	C	.	.	.	.	.	.	+	III 1	100 3	80 2	100 2
	Hypnum cupressiforme	D	3 +	.	.	.	.	.	.	V 1	80 +	.	71 +
Ass. 4	***Molinio-Quercetum***												
	Calamagrostis arundinacea	C	.	.	.	30 +	.	.	.	I (+)	.	60 +	.
	Molinia caerulea ssp. *arundinacea*	C	50 2	.	.	.	40 +	.	.	.	100 3	73 +	43 +
	Hieracium racemosum	C	.	.	.	.	.	.	.	.	.	27 +	86 +
diff.	*Erica carnea*	C	.	.	.	.	.	.	.	.	100 2	53 1	
Ass. 5	***Melampyro-Quercetum***												
	Hieracium sabaudum	C	3 +	.	.	.	.	.	.	V 1	20 +	7 +	71 +
	Chamaecytisus supinus	C	27 +	.	.	.	.	.	.	.	.	.	100 1
	Melampyrum pratense ssp. *vulgatum*		.	.	.	.	.	.	.	.	.	80 1	100 2
	Quercus petraea	A1	3 2	2 +	2 +	20 +	80 +	1 1	+	V 4	80 1	100 4	100 3
	Quercus petraea	A2	20 1	.	.	.	.	.	.	.	.	.	7 2
	Quercus petraea	B	20 +	2 +	3 +	30 +	60 +	3 +	.	.	60 +	87 1	100 1
	Quercus petraea	C	70 +	1 +	1 +	.	.	1 +	.	.	100 +	20 +	86 1

1 *Pteridio-Betuletum* Trinajstić & Šugar ex Rauš & Matić 1994, Šilc et al. hoc loco
2 *Pteridio-Betuletum* Trinajstić & Šugar ex Rauš & Matić 1994, Trinajstić (2004)
3 *Pteridio-Betuletum* Trinajstić & Šugar ex Rauš & Matić 1994, Rauš & Matić (1994)
4 *Fagetum croaticum boreale abietetosum* Horvat 1938 stage *Betula pendula*, Vukelić & Španjol (1990)
5 *Populo tremulae-Betuletum pendulae* (Glišić) Trinajstić 2004, Trinajstić (2004)
8 *Betulo-Quercetum illyricum* Fukarek 1959, Rauš & Vukelić (1986)
9 *Querco-Betuletum* Tüxen 1937 fragm., Horvat (1962)- species listed in text
10 *Deschampsio flexuosae-Quercetum* Firbas & Sigmond 1928, Košir (1994)- shortened synoptic table
11 *Molinio-Quercetum* Šugar 1972, Šilc et al. hoc loco
12 *Molinio-Quercetum* Šugar 1972, Šugar (1972)
13 *Melampyro-Quercetum praedinaricum* Puncer & Zupančič 1981, Puncer & Zupančič (1981)