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EUROPEAN HAZEL SHRUBS IN THE VEĽKÁ FATRA MTS: SYNTAXONOMY AND NOMENCLATURE

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Abstract

The core of the article lies in syntaxonomical evaluation of 25 phytocoenological relevés of the European hazel stands from the Veľká Fatra Mts (Central Slovakia, West Carpathians).

These relevés were classified by hierarchical clustering methods and compared with the original diagnoses of relevant associations. The authors suggest the new name for the invalidly described association *Lonicero nigrae-Coryletum* (Kulczyński 1928) Jurko 1964 (*Prenantho purpurei-Coryletum*) and set its nomenclatural type (neotype).

Key words: *Corylus avellana*, mesophilous shrub vegetation, *Corylo-Populion tremulae*, phytosociology, Central Slovakia.

Izvleček

V članku smo sintaksonomsko ovrednotili 25 fitocenoloških popisov sestojev navadne leske z gorovja Veľká Fatra (srednja Slovaška, Zahodni Karpati). Popise smo klasificirali s hierarhično klastrsko metodo in primerjali z izvirnim opisom ustreznih asociacij. Avtorja predlagata novo ime za neveljavno opisano asociacijo *Lonicero nigrae-Coryletum* (Kulczyński 1928) Jurko 1964 (*Prenantho purpurei-Coryletum*) in določita nomenklaturni tip (neotip).

Ključne besede: *Corylus avellana*, mezofilna grmišča, *Corylo-Populion tremulae*, fitocenologija, srednja Slovaška.

INTRODUCTION

Stands dominated by European hazel (*Corylus avellana*) are typical vegetation elements of hilly landscape and mountainous areas in Slovakia. They usually form belts of various width or enclaves along the field roads, on (abandoned) balks, in meadow-pasture complexes or shrub belts on forest borders of broadleaved or secondary coniferous forests. They represent substitutive communities after the oak-hornbeam, beech or scree forests. In the past, their distribution was significantly affected by man, who planted hazel as a protection against grazing by live stock and woodland animals, or to demarcate boundaries between meadow parcels and small fields (Jurko 1972, Mercel 2006). They are preserved mainly in regions with extensive farming and scattered settlement (Valachovič 2002). In intensively cultivated agricultural land, during the reclamations in the second half of the 20th century, they were more or less eliminated. Along the altitudinal gradient from the Carpathian foothills to the inside of the high mountains of the West Carpathians, the floristic composition changes and this was reflected in the description of two associations: *Pruno spinosae-Coryletum* Jurko 1964 in the lower and warmer Carpathian foothills, and *Lonicero nigrae-Coryletum* (Kulczyński 1928) Jurko 1964 in the higher altitudes of mountain regions (cf. Jurko 1964: 41–56, Tab. 4, 5). Based on three relevés from slopes of the Pľaša hill in the

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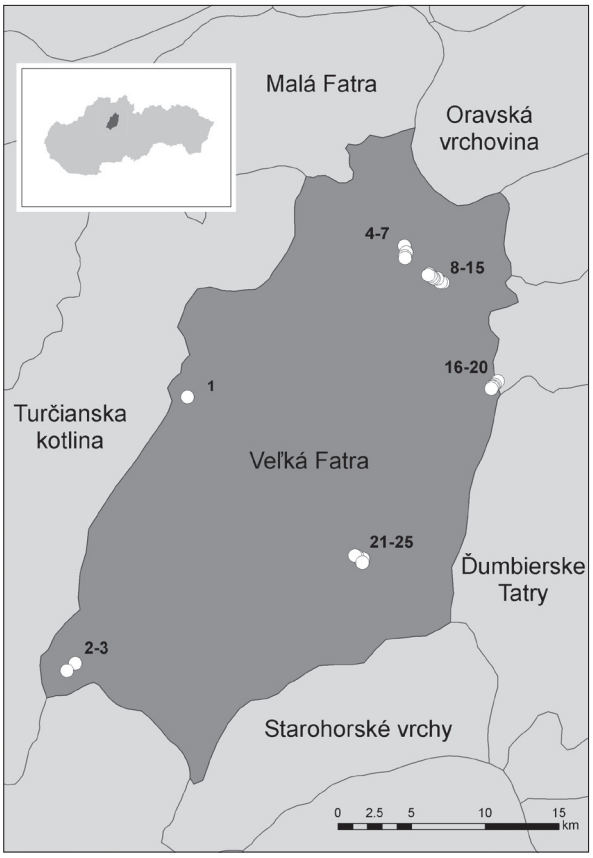

Figure 1: Location map of studied area - Veľká Fatra Mts with localities of relevés (Table 1).
Slika 1: Karta preučevanega območja – gorovje Veľká Fatra s kraji popisov (Tabela 1).

Bukovské vrchy Mts, in 810–825 a. s. l., the association *Helleboro-Coryletum* Hadač et Terray 1989 was described. It contains the East Carpathian migrants *Helleborus purpurascens*, *Symphytum cordatum* and *Aposeris foetida* (Hadač & Terray 1989: 364–365, Tab. 14). Both West Carpathian associations were also found in the Veľká Fatra Mts (Figure 1). Jurko (1964, Tab. 5, r. 2, 15) published two relevés of the association *Lonicero* (*nigrae*)-*Coryletum* from the surroundings of the villages of Vlkolínec and Horný Harmanec, 730–900 m a. s. l. The relevé of the association *Pruno-Coryletum* comes probably from the borderline of the Turčianska kotlina Basin and the Veľká Fatra Mts from surroundings of the village Sklabiňa, 550 m a. s. l. (Jurko 1964, Tab. 4, r. 16). Also Kontriš et al. (2002, Tab. 1, r. 2, 5, 7, 8) assigned their relevés from the northeastern periphery of the Veľká Fatra Mts (area Vlkolínec – Podsuchá southwards from the Ružomberok, 550–750 m a. s. l.) to the association *Pruno-Coryletum*. They divided the relevés into two subassociations – *typicum* (r. 2, 5, 8) and *cornetosum* (r. 7), yet without citation of any author. During the vegetation season 2010 this fragmentary information was completed by new phytocoenological relevés from the periphery of the mountain range, in particular from the localities where hazel stands are more frequent. Their syntaxonomical classification, together with an evaluation of earlier published relevés is the core of this article.

MATERIAL AND METHODS

Phytocoenological relevés by the authors, which are not yet published, from the Veľká Fatra Mts (25 r.), following the method of the Zürich-Montpellier school (Braun-Blanquet 1951; Westhoff & van der Maarel 1978) were compared with all other published relevés from this territory (Kontriš et al. 2002, 4 r.) and with original diagnoses of the associations published by Jurko (1964, Tab. 4, 5; 47 r.). Our relevés were made in older stands least affected by man. The size of the analysed relevés was proportional to the shape and size of the stands. The area of the relevés did not overlap with the contact zone containing species of adjacent fringes or meadows. Before synthesis, relevés were stored in the database TURBOVEG (Hennekens & Schaminée 2001) and transformed to the nine-degree scale (van der Maarel 1979). Regarding differences of input data (non-separated layers for most of the woody plants and absence of mosses in published relevés), the relevés were modified in the FYTOPACK program (Jarolímek & Schlosser 1997). In this program, also the final phytocoenological tables were arranged. To improve the comparability of input data, some narrowly defined species were included to wider defined species (*Cardaminopsis arenosa* and *C. carpatica* to *C. arenosa* agg., *Galeobdolon luteum* and *G. montanum* to *G. luteum* s. l., *Galium album* and *G. mollugo* to *G. mollugo* agg., *Glechoma hederacea* and *G. hirsuta* to *G. hederacea* s. l., *Pulmonaria obscura* and *P. officinalis* to *P. officinalis* agg., *Valeriana *sambucifolia* and *V. officinalis* to *V. officinalis* agg.). The prepared data were classified by the program HierClus from the program package SYN-TAX 2000 (Podani 2001), using Ružička's and Jaccard's coefficients of similarity and the β-flexible method of clustering with coefficient β = -0.25. The final tables reflect the different character of the input data.

The phytocoenological table of all relevés made by the authors in the study area (Table 1) contains complete data on layers and mosses. In the shortened synoptic table (Table 2), data from the constancy table of Kulczyński (1928) are also included. In this table, cover values of layers E_2 and E_1 were merged and mosses excluded in our data. In the table (Table 1), the degree 2 was further differentiated (2m, 2a, 2b; cf. Barkman et al. 1964) in shortened form m, a, b. The analysed community is dominated by woody plants, so in the table, trees and shrubs with all relevant layers are grouped together, followed by herb and moss layer data. Values of frequency of individual species (in %) are indicated by average cover in an ordinal nine degree scale (upper index). The shortened synoptic table (Table 2) shows, besides the running number of the community, also data on the number of relevés per unit and the average number of taxa in the community. In order to merge all data with the constancy table of Kulczyński (1928), columns contain frequency values of species (in %), completed by the range of cover values in Braun-Blanquet's seven-degree scale (upper index). Column 5, representing only four relevés, contains the numbers of occurrences in italics.

Differential taxa of the associations follow from the shortened synoptic table (Table 2). Together with the differential taxa of variants, values of their frequency are highlighted in bold. The definitions of diagnostic taxa of the higher units follow Moravec et al. (2000) and Jarolímek et al. (2008a). In the tables, they are marked in the first column by abbreviations explained below. All taxa with frequency above 60 % were considered as constant.

The nomenclature of vascular plants and mosses follows the Checklist of non-vascular and vascular plants of Slovakia (Marhold et al. 1998; Kubinská & Janovicová 1998). An asterisk (*) in the phytocoenological tables substitutes the species name within the subspecies name. For species absent in the Checklist the citation of the author is given. Nomenclature of syntaxa and assignment to the higher units are in accordance with Jarolímek et al. (2008b). Nomenclatural problems were solved following the rules and recommendations of the International Code of Phytocoenological Nomenclature (IPCN; Weber et al. 2000). Basionym (Bas.) is a name which is the basis for a nomen novum and is linked to the nomenclatural type (cf. Weber 2003: 402).

In the phytocoenological tables we used the following abbreviations for higher syntaxa: ac = *Acerenion*, ai = *Alnion incanae*, as = *Arctio-Sambucion nigrae*, be = *Berberidion*, cb = *Carpinion betuli*, cf = *Cephalanthero-Fagenion*, Fs = *Fagetalia sylvaticae*, fs = *Fagion sylvaticae*, gs = *Geranion sanguinei*, pc = *Populo tremulae-Corylion*, QF = *Quercо-Fagetea*, Qp = *Quercetalia pubescenti-petraeae*, RP = *Rhamno-Prunetea*, ss = *Sambuco-Salicion capreae*, ta = *Tilio-Acerion*, TG = *Trifolio-Geranietea*, tm = *Trifolion medii*. Diagnostic taxa of closely related alliances, which separately have a low differential value for corresponding syntaxa, were merged with higher syntaxa (e.g. alliances of the order *Quercetalia pubescenti-petraeae*).

Relevés are localized by the geographical coordinate system WGS-84.

RESULTS

The comparison of unpublished and published relevés from the Veľká Fatra Mts and original diagnoses of the West Carpathian European hazel communities provided a series of dendrograms, which directed the syntaxonomical classification of relevés and the arrangement of tables. From this comparison we conclude that, despite the partially transitional character of the floristic composition of hazel stands in the Veľká Fatra Mts, they can be classified to the West Carpathian mountain community published as *Lonicero nigrae-Coryletum* (Kulczyński 1928) Jurko 1964. Yet a more detailed study of the original diagnosis showed that the name of the community was published invalidly. The explanation of the syntaxonomical classification of relevés from the Veľká Fatra Mts, including published relevés, and the arguments for the creation of a new name for European hazel stands in mountainous areas, are part of the discussion.

Prenantho purpurei-Coryletum avellanae (Kulczyński 1928) Kliment et Jarolímek, nom. nov. hoc loco

Bas.: *Coryletum avellanae* Kulczyński 1928: 134 (Art. 31)

Syn.: *Lonicero nigrae-Coryletum* (Kulczyński 1928) Jurko 1964 [original form of the name: *Lonicero (nigrae)-Coryletum* (Kulcz. 28) em. Jko 64] (Art. 3f); *Lonicero (nigrae)-Coryletum pienninicum* Jurko 1964 (Art. 2b, 34a)

Incl.: *Corylus avellana-Aegopodium podagraria* community (Chećko et Szajda 2004), *Corylus*

avellana-Oxalis acetosella community (Chećko et Szajda 2004)

Non: *Coryletum* Beger 1922 (cf. Beger 1922: 81–84), *Coryletum avellanae* von Soó 1927 (cf. Soó 1927: 62–64)

Nomenclatural type: Jurko 1964, Tab. 5, r. 9, lectotypus hoc loco

Table 1, Table 2, column 4

Differential taxa against *Pruno spinosae-Coryletum* (all species without indications are herbs): *Acer pseudoplatanus* E_3, E_2, E_1, *Actaea spicata*, *Ajuga reptans*, *Astrantia major*, *Carex digitata*, *Chaerophyllum aromaticum*, *Cirsium erisithales*, *Cruciata glabra*, *Dentaria bulbifera*, *Dryopteris filix-mas*, *Fagus sylvatica* E_2, E_1, *Fraxinus excelsior* E_3, E_2, E_1, *Galeobdolon luteum*, *Galium odoratum*, *Listera ovata*, *Maianthemum bifolium*, *Melampyrum nemorosum*, *Mercurialis perennis*, *Neottia nidus-avis*, *Oxalis acetosella*, *Paris quadrifolia*, *Polygonatum verticillatum*, *Prenanthes purpurea*, *Ranunculus lanuginosus*, *Rubus idaeus*, *Salvia glutinosa*, *Senecio germanicus*, *S. ovatus*, *Sorbus aucuparia* E_1, *Stachys sylvatica*, *Tithymalus amygdaloides*, *Viburnum opulus* E_1.

Constant taxa: *Corylus avellana* E_2 (dom.), E_1, *Crataegus laevigata* E_2, E_1, *Fraxinus excelsior* E_3, E_2, E_1, *Lonicera xylosteum* E_1, *Swida sanguinea* E_1, *Viburnum opulus* E_1, *Aegopodium podagraria*, *Ajuga reptans*, *Asarum europaeum*, *Campanula rapunculoides*, *C. trachelium*, *Fragaria vesca*, *Galeobdolon luteum*, *Heracleum sphondylium*, *Melica nutans*, *Polygonatum multiflorum*, *Primula elatior*, *Pulmonaria obscura*.

Description: Species rich shrub community (37–76, on the average 46 species per relevé) dominated by European hazel (*Corylus avellana*) that reaches a height of (3) 4–5 m, older stands are up to 6–7 (8) m high. Hazel grows in groups and in gaps between them, especially in older stands the cover of the shrub layer decreases and so the cover of E_2 oscillates between 75–98 %. At the edge of stands or in their less densely shaded parts also other shrubs grow, such as *Crataegus laevigata*, *Ligustrum vulgare*, *Lonicera xylosteum*, *Prunus spinosa*, *Swida sanguinea*, *Viburnum lantana*, *V. opulus*, in the lower layer also *Daphne mezereum*, *Rhamnus catharticus*, *Ribes uva-crispa* a. o., as well as the semi shrubs *Rosa canina* agg. and *Rubus idaeus*. The occurrence of tree species is the typical feature of the stands, particularly of *Acer campestre*, *Fraxinus excelsior*; less frequent are *Acer pseudoplatanus*, *Fagus sylvatica*, *Picea abies*, *Populus tremula* a. o. Here and there, they stand out from the shrubs and reach a height of 8–12 m. They are much more frequent and abundant in the herb layer. Its cover varies depending on the age of stands, on the pattern of European hazel and shrub and tree layer cover between 15–75 (85) %, most frequently around 50 %. Syngenetic relations to beech forests are indicated by the number of *Fagetalia* species (Table 1, 2) such as **Actaea spicata*, *Aegopodium podagraria*, *Asarum europaeum*, *Campanula trachelium*, **Carex digitata*, **Dentaria bulbifera*, **Dryopteris filix-mas*, **Galeobdolon luteum*, **Galium odoratum*, *Geranium robertianum*, **Mercurialis perennis*, **Neottia nidus-avis*, **Paris quadrifolia*, *Polygonatum multiflorum*, **P. verticillatum*, *Pulmonaria obscura*, *Symphytum tuberosum*, **Tithymalus amygdaloides*, *Viola reichenbachiana*. Most of them (marked by*) differentiate the association *Prenantho-Coryletum* against the association *Pruno-Coryletum*, which is typical for hilly landscape. The abundance of mosses depends on the share of skeleton in the soil. The more frequent species are *Brachythecium rutabulum*, *B. salebrosum*, *Eurhynchium hians*, *Plagiomnium affine*, and *P. undulatum*.

Stands of the association *Prenantho-Coryletum* were found on medium to steep slopes (15–35°, prevailingly 20–25°) with various aspect, at altitudes from (450) 550 to 800 m a. s. l. They form belts of various width and enclaves along field roads, at bounds on submontane meadows, at grass slopes (Figure 2), at the bottoms of small and shallow valleys, at forest mantles, at margins of ravines or at deforested corridors for high voltage power cables. They occupy shallow, usually weakly skeletal (rocks, rarely gravel), modest to fresh moist, crumbly, well aerated, and only rarely more compact soils on lime stones, sporadically on slates (relevés 23, 24). Skeleton occupies a portion of 2–5 (10) %, rarely 30 % of the surface. In some places the soil surface is without skeleton, in others the skeleton is of allochthonous origin – it was probably collected in the past from surrounding meadow-pasture complexes. The soil surface is characterized by the decomposition of sticks, detritus and litter.

Depening on altitude as well as the cover of shrub and herb layers, two well-differed variants were distinguished within the association (Figure 3, Table 1).

The variant *typicum* (Table 1, block A) contains more open stands of the European hazel (cover E_2 75–95 %) with high cover of the herb

Figure 2: The European hazel stands form an important feature of (sub) mountain landscape of the West Carpathian range (photo near the village of Vlkolínec on north-east part of the Veľká Fatra Mts).
Slika 2: Sestoji navadne leske dajejo značilni videz (sub)montanski krajini Zahodnih Karpatov (fotografija posneta v bližini vasi Vlkolínec v severovzhodnem delu gorovja Veľká Fatra).

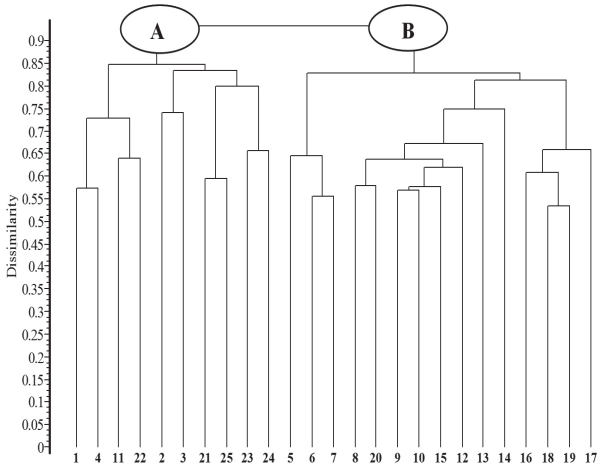

Figure 3: Dendrogram of the *Prenantho purpurei-Coryletum avellanae* relevés from the Veľká Fatra Mts. Number of relevés are the same as in the table (Table 1).

A – typical variant; B – variant with *Melampyrum nemorosum*.

Program used HierClus from the SYN-TAX 2000 (Podani 2001), with Ružička's coefficient of similarity and β-flexible method of clustering with coefficient β = -0.25.

Slika 3: Dendrogram popisov asociacije *Prenantho purpurei-Coryletum avellanae* z gorovja Veľká Fatra. Številke popisov so enake kot v tabeli (Tabela 1).

A – tipična varianta; B – varianta z vrsto *Melampyrum nemorosum*.

Uporabili smo program HierClus iz paketa SYN-TAX 2000 (Podani 2001) s koeficientom podobnosti po Ružički in β-fleksibilno metodo klastriranja s koeficientom β = -0.25.

layer (50–85 %, on average 65 %; Figure 4), localised mostly at altitudes above 700 m a. s. l. [(450) 590–800 m, on average 710 m]. In closed but relatively narrow stands the development of the herb layer is supported by the sunlight that penetrates stands from the margins (cf. Kontriš 1966: 61). Against the following variant it is well differed by a numerous group of predominantly mountain species (trees, herbs and mosses) with higher demands of soil moisture and nutrients: *Acer platanoides*, *A. pseudoplatanus*, *Sambucus nigra*, *Rosa pendulina*, *Geranium robertianum*, *Poa nemoralis*, *Galium odoratum*, *Mercurialis perennis* (dom.), *Rubus idaeus*, *Geranium phaeum*, *Polygona-*

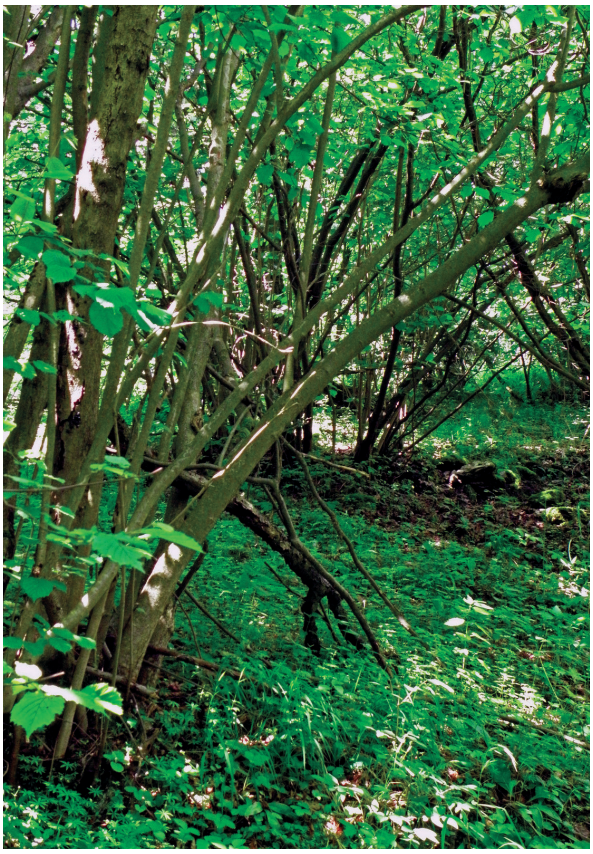

Figure 4: Interior of the European hazel stand near the village of Čremošné (Table 1, relevé 2).
Slika 4: Notranjost sestoja navadne leske pri vasi Čremošné (Tabela 1, popis 2).

tum verticillatum, *Ranunculus lanuginosus*, *Rubus saxatilis*, *Convallaria majalis*, *Senecio ovatus*, *Valeriana excelsa* subsp. *sambucifolia*, *Digitalis grandiflora*, *Epilobium montanum*, *Milium effusum*, *Prenanthes purpurea*, *Luzula luzuloides*, *Brachythecium populeum*, and *Pseudoleskeella nervosa*.

The variant with *Melampyrum nemorosum* (Table 1, block B) includes rather closed hazel stands (cover E_2 85–98 %) with a markedly lower cover of the herb layer [15–40 (60) %, on average 33 %)], situated at lower altitude: (500) 555–640 m, on average 590 m. Against the previous variant some woody species differentiate (*Acer campestre*, *Rhamnus catharticus*, *Frangula alnus*, *Euonymus europaeus*) as well as the mixture of species from limestone beech forests, mesophilous fringes and surrounding meadows that penetrate into the marginal parts of the stands (*Melampyrum nemorosum*, *Neottia nidus-avis*, *Betonica officinalis*, *Listera ovata*, *Cirsium erisithales*, *Hieracium murorum*, *Hypericum hirsutum*, *Ranunculus acris*) together with some mosses (*Brachythecium rutabulum*, *Plagiomnium affine*).

In the floristic composition of stands, the specific position of the Veľká Fatra Mts within the central mountain range of the West Carpathians is reflected by higher participation of (sub)xerothermophilous taxa in some communities also at higher altitudes (cf. Uhlířová et al. 1999; Kliment 2002; Kliment & Bernátová 2006; Kliment et al. 2008). Besides the numerous differential species of the association *Prenantho-Coryletum* these stands contain most of the already mentioned differential species of the association *Prunо spinosae-Coryletum* (Table 2); quite frequent are *Prunus spinosa*, *Rosa canina*, *Viburnum lantana*, *Ligustrum vulgare*, and *Clinopodium vulgare*. Due to these species, Hazel stands in the Veľká Fatra Mts occupy an intermediary position between both associations, which is evident especially in the variant with *Melampyrum nemorosum* (*Acer campestre* and *Euonymus europaeus* are concentrated within this variant).

Larger and abundant hazel stands still occur in the surroundings of the municipalities of Hubová, Ružomberok (Černovské lúky meadows, area of Biely Potok – Vlkolínec) and Liptovské Revúce (cf. Jurko 1964, 1972), less frequently also in other localities (Čremošné, Sklabinský Podzámok).

DISCUSSION

Syntaxonomical position of the West Carpathian European hazel stands in mountain areas and their relation to those in hilly landscapes; correct name of the association

Opinions on the syntaxonomical classification of the West Carpathian (sub)mountain hazel stands diverge. Some of the Polish authors, e.g. Chećko & Szajda (2004: 182) hold the opinion that hazel stands represent transitionary stages within the succession, with a species composition slightly changed in comparison with the broadleaved forests from which they emerged after deforestation, and consequently will shift back to forest with hazel prevailing in the shrub layer. Thus, hazel stands do not deserve the rank of an association. Hazel stands in the Pieniny Mts have been classified as communities of the alliance *Fagion sylvaticae* (Chećko & Szajda 2004: 157, Tab. 5, 7). For the same reason the mesophilous shrub hazel com-

munities are missing in the survey of plant communities of Poland (Matuszkiewicz 1984, 2001).

On the other hand pure hazel stands from the Polish side of the Pieniny Mts were classified already by Kulczyński (1928: 134–136) as *Coryletum avellanae* and documented by a constancy table that was unusually based on 4 phytocoenological relevés only (!). Jurko (1964: 48–56, Tab. 5) identified with this association hazel stands which he described from (sub)mountain locations of the West Carpathians. According to one of the differential species of the association he named this community *Lonicero* (*nigrae*)-*Coryletum* (Kulcz. 28) em. Jko; stands from the Pieniny Mts he classified as a specific race *Lonicero* (*nigrae*)-*Coryletum pienninicum*. Within the alliance *Corylo-Populion tremulae* Br.-Bl. 1961 the association *Lonicero nigrae-Coryletum* (Kulczyński 1928) Jurko 1964 was published in the following years in sporadic works describing mountain hazel shrubs (Urbanová 1977, Tab. 14; Hadač & Terray 1989, Tab. 13; Hrivnák & Cvachová 1999: 23), and also in vegetation (or biotope) surveys from Slovakia (Mucina & Maglocký 1985: 210; Valachovič 2002: 36; Jarolímek et al. 2008b: 316 a o.).

Mutual comparison of the original diagnoses of the associations *Lonicero nigrae-Coryletum* and *Coryletum avellanae* (Table 2, column 2, 3) points out a considerable correspondence in floristic composition between both communities. Hazel stands recorded by Kulczyński (1928) partially differ by several species of mesophilous or hydrophilous meadows and pastures (*Agrostis capillaris*, *Alchemilla monticola*, *Carex echinata*, *Carlina acaulis*, *Danthonia decumbens*, *Potentilla erecta* a. o.) that participate. Both communities actually belong to the same association. However, in his original table Kulczyński (l. c.) did not mention *Lonicera nigra* (only *L. xylosteum*), and therefore the new name proposed by Jurko (1964) was published invalidly (Art. 3f). The original name *Coryletum avellanae* Kulczyński 1928 cannot be used for the community under discussion, because it is a younger homonym of the often cited *Coryletum avellanae* von Soó 1927 (incl. *Coryletum mixtum*), described from the Bükk Mts in the North Hungary (Soó 1927: 62–64). In harmony with the regulations of IPCN (Art. 3f, 21, 31, 39; recommendation 21A) we thus proposed for the (sub)montane European hazel stands in the West Carpathians the name *Prenantho purpurei-Coryletum avellanae* (Kulczyński 1928) nom. nov. As a nomenclatural type (neotype) we chose a relevé from the Southern slopes of the Pieniny Mts near the village of Stráňany, 780 m a. s. l. (Jurko 1964, Tab. 5, r. 9).

Jurko (1964: 54) differentiated the more or less montane association *Lonicero* (*nigrae*)-*Coryletum* (530–920 m a. s. l.) against the association *Pruno spinosae-Coryletum* (320–680 m a. s. l.), which is confined rather to hilly areas by a group of 19 local characteristic and differential species. Most of them are valid if (preliminary) tested with the material presented in this article (Table 2); both associations occupy more or less complementary areas (cf. Jurko 1964: 42, Fig. 13). Unlike for the montane community Jurko did not state differential species for the association *Pruno-Coryletum*, and that implies some problems concerning the differentiation of these communities. Let us evaluate the hazel stands from the Liptovská kotlina Basin, 520–790 m a. s. l., (Kontriš 1966: 59–66, Tab. 5) as an example. They were assigned by the author, probably based on woody species composition, to the association *Pruno-Coryletum*. From the 14 taxa that locally differentiate against the association *Ligustro-Prunetum* (p. 62) as shown in this publication, 10 species were originally used as differential species for the *Lonicero nigrae-Coryletum* (= *Prenantho-Coryletum*) against *Pruno-Coryletum*, and 5 of them (*Populus tremula*, *Mercurialis perennis*, *Dryopteris filix-mas*, *Luzula luzuloides*, *Polygonatum verticillatum*) were stated as differential species by Jurko (1964: 54). Several other differential species of the association *Lonicero-Coryletum*, mentioned by Jurko, occur with lower constancy (II, I) in table 5. Kontriš (l. c.) did not mention the association *Lonicero-Coryletum*. Comparing the original diagnoses of both associations (Jurko 1964, Tab. 4, 5) resulted in a group of species, which can be preliminarily accepted as differential species for the *Pruno-Coryletum* (Table 2, column 1). The diagnostic value of some of them seems to be weak (*Prunus spinosa*, *Rosa canina*, *Acer campestre*), because they occur also in the Liptovská kotlina Basin (Kontriš 1966, Tab. 5) and in the Veľká Fatra Mts (Kontriš et al. 2002, Tab. 1; Tab. 2 in this article). Only further phytocoenological research that covers the whole of Slovakia and consequent analysis of relevés will shed light on the final differentiation between both associations. Clarification of the correct name of the community from the Carpathian foothills, which was described as *Pruno-Coryletum* (cf. Jarolímek et al. 2008b: 316), is beyond the scope of this article.

The relation between the European hazel stands in the West Carpathians and the Alps

Exner & Willner (2007: 78) included in the extremely widely defined association *Populo tremulae-Coryletum* Br.-Bl. ex Kielhauser 1954 (*Populo tremulae-Corylion*) not only the association *Roso vosagiacae-Coryletum* Oberd. 1957 [recte: *Roso glaucae-Coryletum*; cf. Oberdorfer 1957: 521] but also the West Carpathian communities *Pruno spinosae-Coryletum* Jurko 1964 and *Lonicero nigrae-Coryletum* Jurko 1964. Kielhauser (1954, Tab. 2) made phytocoenological relevés of the association *Coryleto-Populetum* in the Alps on dry and warm slopes of the valleys, which are affected by the intra-mountain continentality, and also at mezophilous habitats (rel. 4–9) in the (690) 930–1 000 m a. s. l. Great habitat differences were reflected in the species composition (mixture of thermo- and mezophilous species) and in the classification of the community within the alliance *Berberidion* (Kielhauser 1954: 189). The same classification was also used by Wirth (1993: 60, ut *Populo-Coryletum* Br.-Bl. 1950 nom. inv.), but he included (as syntax. syn.) only the more thermophilous community *Pruno spinosae-Coryletum* Jurko 1964. The comparison of the association *Populo tremulae-Coryletum* and the communities described from the Western Carpathians (Table 2) showed, that this community differs from both the Carpathian communities, not only regarding the above mentioned specific intra-mountain climate in the Alps, but also by the different floristic composition. This dissimilarity is evident from the list of diagnostic species stated in the original diagnosis (Kielhauser 1954, Tab. 2) or in later surveys (Wirth 1993: 66; Exner & Willner 2007: 78). We conclude that, despite the similar altitude and partially identical species composition (occurrence of several mesophilous species), the associations *Populo tremulae-Coryletum* and *Lonicero nigrae-Coryletum* (i. e. *Prenantho purpurei-Coryletum*) represent two distinctive communities and their identification is not correct.

From the territory of the Czech Republic and Hungary the association *Lonicero nigrae-Coryletum* has not yet been registered yet (cf. Moravec 1995, Borhidi & Kevey 1996); the classification of the similar European hazel stands in the Polish part of the Western Carpathians is mentioned above.

Syntaxonomical classification of the European hazel stands from the Veľká Fatra Mts

In the Veľká Fatra Mts, a large number of plant taxa attain the highest groeth within Slovakia (cf. Kliment & Bernátová 2006, Kliment et al. 2008). This is its phytogeographical specificity. Regarding the differential species for the association *Pruno spinosae-Coryletum* (Table 2, column 1) that were stated above, in the hazel stands in the Veľká Fatra Mts (Table 2, column 4) *Acer campestre*, *Prunus spinosa*, *Rosa canina* and *Viburnum lantana* occur most frequently, *Ligustrum vulgare* and *Clinopodium vulgare* are relatively frequent. Their participation is noticeable especially in the variant with *Melampyrum nemorosum* which is typical for lower altitudes of mountains (Table 1, block B), yet according to data in the literature (Kliment & Bernátová 2006, Kliment et al. 2008) *Acer campestre* grows in the Veľká Fatra Mts up to 1 000 m, *Clinopodium vulgare* up to 1 470 m, *Ligustrum vulgare* up to 950 m, *Prunus spinosa* up to 1 150 m, *Viburnum lantana* up to 1 140 m. The ambiguous diagnostic value of some species considered to be differential species is mentioned above. On the other hand, there is a firm block of species (Table 2, column 4), which well differs the hazel stands in the Veľká Fatra Mts against the association *Pruno spinosae-Coryletum* and warrants their classification within the association *Prenantho-Coryletum* (e.g. *Fraxinus excelsior*, *Fagus sylvatica*, *Acer pseudoplatanus*, *Viburnum opulus*, *Ajuga reptans*, *Galeobdolon luteum*, *Polygonatum multiflorum*, *Dryopteris filix-mas*, *Actaea spicata*, *Astrantia major*, *Chaerophyllum aromaticum*, *Maianthemum bifolium*, *Melampyrum nemorosum*, see also community description in the results). Altitude plays an important, yet not decisive role for the species composition of stands and their classification. Besides the low limit of the altitude range of relevés in the original table of the association *Lonicero nigrae-Coryletum* (530–920 m), the vertical distribution of analysed stands belonging to the typical variant (e.g. r. 4 in Tab. 1, 450 m) and stands of the association *Lonicero-Coryletum* from the Bukovské vrchy Mts (270–370 m, Hadač & Terray 1989, Tab. 13) further support this interpertation.

From this point of view we can evaluate also the additional, formerly published relevés of hazel stands from the Veľká Fatra Mts (Kontriš et al. 2002, Tab. 1, r. 5, 8, 2, 7). The authors have classified relevés from the northwestern part of the mountain range (Vlkolínec – Podsuchá, 550–

750 m) to the association *Pruno-Coryletum* Jurko 1964, subassociation *typicum* (r. 2, 5, 8), and *cornetosum* (r. 7). Similarly to our relevés, also in those numerous differential species of this association occur, for example *Prunus spinosa*, *Rosa canina*, *Acer campestre*, *Clinopodium vulgare*, *Galium mollugo* agg. and *Viburnum lantana* (Tab. 2, column 5). Considering the floristic composition of both associations, including differential species, we conclude that most of the relevés from Kontriš et al. (l. c.) belong to the *Prenantho-Coryletum* (r. 2, 7, 8) and relevé no. 5 lies in an intermediary position between both associations. The task of assigning relevés to subassociations is difficult. They were invalidly described by Jurko (1972: 621) (art. 2b, nomen nudum). He differentiated them only by territory and bedrock (typical subassociation: Krupinská planina Plain and Javorie Mts, volcanic rocks, subassociation with *Cornus mas*: Slovenský Kras Karst, Strážovské vrchy Mts a. o., limestone). Kontriš et al. (2002) assigned to this subassociation, in contrast with its definition, a relevé from the stand dominated by *Swida sanguinea* (Table 1, r. 7), which is more similar to the mesophilous variant with *Cornus sanguinea* (ass. *Ligustro-Prunetum*), described from the neighbouring Liptovská kotlina Basin (Kontriš 1966, Tab. 3, r. 20–35).

To clarify these issues and to more unambiguously express our solution of the syntaxonomical classification of the hazel stands in the Veľká Fatra Mts with their transitional floristic composition, will be possible only after gathering and analysing more data from all over Slovakia.

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LOCALITIES OF RELEVÉS

Explanations: JKl – Ján Kliment, RH – Richard Hrivnák, VF – Veľká Fatra Mts, r. – relevé, v. – village, n. l. – north latitude, e. l. – east longitude

1. VF, v. Turčianske Jaseno, part Horné Jaseno, hazel stand below the field road eastwards from the village, surface mildly debris (with single rocks), hazel in groups; coordinates: 49° 01' 02,4" n. l., 19° 00' 25,6" e. l., coordinate accuracy: ± 8 m, altitude: 653 m, orientation of slope: NW (322°), inclination: 20°, size of relevé: 12 × 7 m, cover: E_2 95 %, E_1 85 %, E_0 1 %, height: E_2 5 m, E_1 80/40 cm, datum: 10. 6. 2010, author of relevé: JKl.
2. VF, v. Čremošné, above the field road (yellow tourist sign), between cottages and ski lift, surface mildly debris, hazel in groups; 48° 50' 59,1" n. l., 18° 55' 19,6" e. l., ± 7 m, 776 m, SW (230°), inclination 20°, 13 × 5 m, E_3 20 %, E_2 80 %, E_1 75 %, E_0 1 %, height E_3 11 m, E_2 5–7 m, E_1 30–50 cm, 17. 6. 2010, JKl, RH.
3. VF, v. Čremošné, slope above the asphalt road to the village, near the secondary spruce forest below the top of a small crest; 48° 50' 41,2" n. l., 18° 54' 53,6" e. l., ± 8 m, 703 m, SE (116°), inclination 20°, 10 × 7 m, E_3 5 % (margin), E_2 75 %, E_1 50 %, E_0 30 %, height E_2 6–8 m, E_1 50/15 cm, 17. 6. 2010, JKl, RH.
4. VF, v. Hubová, wider belt of hazel stand (along the fall line) above the upper end of the village (near roadhouse), scattered rocks on the surface, crown canopy ± regular; 49° 07' 09,4" n. l., 19° 11' 51,3" e. l., ± 6 m, 450 m, NNE (34°), inclination 35°, 6 × 10 m, E_2 90 %, E_1 75 %, E_0 2 %, height E_2 4 m, E_1 80/40/10 cm, 30. 6. 2010, JKl.
5. VF, v. Hubová, stand of hazel on foothill between the Kútny vrch Mt. (733,3 m) and Malý Smrekovec Mt. (819,0 m), surface mildly debris; 49° 06' 55,7" n. l., 19° 11' 59,2" e. l., ± 8 m, 502 m, W (267°), inclination 20°, 7 × 15 m, E_2 95 %, E_1 35 %, E_0 2 %, height E_2 4 m, E_1 40/15 cm, 30. 6. 2010, JKl.
6. VF, v. Hubová, south from the village, base of slope above mouth of the valley towards to the Malý Smrekovec Mt., stand of hazel below the secondary spruce forest, hazel in groups; 49° 06' 46,8" n. l., 19° 11' 55,2" e. l., ± 17 m, 557 m, SW (225°), inclination 35°, 12 × 8 m, E_2 85 %, E_1 60 %, E_0 1 %, height E_2 4–5 m, E_1 -, 30. 6. 2010, JKl.
7. as 6, higher in the valley, below the high voltage transmission line, surface mildly debris; 49° 06' 43,0" n. l., 19° 11' 56,5" e. l., ± 22 m, 555 m, SW (220°), inclination 25°, 10 × 8 m, E_2 90 %, E_1 30 %, E_0 1 %, height E_2 3,5–4 (6) m, E_1 -, 30. 6. 2010, JKl.
8. VF, town Ružomberok, part Černová, Černovské lúky Meadows, southeast part, below the field road, relatively young stand with non-equal crown canopy; 49° 05' 55,6" n. l., 19° 14' 08,8" e. l., ± 7 m, 576 m, ENE (60°), inclination 20°, 12 × 5 m, E_2 95 %, E_1 35 %, E0 1 %, height E_2 4 m, E_1 45/15 cm, 2. 7. 2010, JKl.
9. as 8, east margin of meadows below the top of forested lateral crest, older stand of hazel, hazel in groups; 49° 05' 55,8" n. l., 19° 14' 01,6" e. l., ± 8 m, 598 m, N (351°), inclination 15°, 15 × 7 m, E_2 90 %, E_1 25 %, E_0 1 %, height E_2 6 m, E_1 35/10 cm, 2. 7. 2010, JKl.
10. as 8, middle part of meadows below the high voltage transmission line, hazel in groups; 49° 06' 03,6" n. l., 19° 13' 49,5" e. l., ± 7 m, 580 m, SW (312°), inclination 20°, 15 × 8 m, E_2 90 %, E_1 40 %, E_0 2 %, height E_2 5 m, E_1 -, 2. 7. 2010, JKl.
11. as 8, middle part of meadows below the field road, east from shallow valley, surface mildly debris (rocks to boulders); 49° 06' 02,7" n. l., 19° 13' 36,8" e. l., ± 7 m, 587 m, N (11°), inclination 15°, 10 × 10 m, E_3 15 %, E_2 85 %, E_1 80 %, E_0 5 %, height E_3 11–12 m, E_2 6–7 m, E_1 40–70/20/10 cm, 2. 7. 2010, JKl.
12. as 8, west margin of meadows, stand of hazel above the occasional right-side tributary of the Bystrý potok Brook (coomb); 49° 06' 12,3" n. l., 19° 13' 21,5" e. l., 612 m, SW (323°), inclination 20°, 10 × 10 m, E_2 90 %, E_1 20 %, E_0 1 %, height E_2 4 m, E_1 30/10 cm, 2. 7. 2010, JKl.
13. as 8, north-western part of meadows, hazel of various age, stand on slightly convex crest below the field road; 49° 06' 04,7" n. l., 19° 13' 32,6" e. l., ± 7 m, 585 m, E (90°), inclination 15°, 10 × 8 m, E_3 20 %, E_2 90 %, E_1 20 %, E_0 1 %, height E_3 9 m, E_2 6 m, E_1 60/10–20 cm, 9. 7. 2010, JKl.
14. as 13, wide belt of hazel stand in meadow complex, hazel in groups; 49° 06' 07,7" n. l., 19° 13' 26,0" e. l., ± 7 m, 619 m, NE (38°), inclination 15°, 8 × 12 m, E_3 10 %, E_2 95 %, E_1 15 %, E_0 1 %, height E_3 8 m, E_2 (3) 5–6 m, E_1 -, 9. 7. 2010, JKl.
15. as 14, stand of hazel along the contour line in meadow-pasture complex on foothill of the

Suchá hôrka Mt. (750,1 m), hazel in groups; 49° 06' 09,4" n. l., 19° 13' 18,0" e. l., ± 10 m, 632 m, NE (39°), inclination 15°, 15 × 7 m, E_3 15 %, E_2 85 %, E_1 25 %, E_0 1 %, height E_3 10 m, E_2 (2) 4–5 m, E_1 -, 9. 7. 2010, JKl.

16. VF, town Ružomberok, part Biely Potok, foothill of the Sidorovo Mt. (1 099,0 m) west from the village south-east from the yellow tourist path, stand of hazel along the contour line (former balk?), surface debris (rocks to boulders 30 %); 49° 02' 27,5" n. l., 19° 17' 36,8" e. l., ± 8 m, 570 m, NE (50°), irregular inclination 20–30°, 15 × 6 m, E_3 10 %, E_2 90 %, E_1 30 %, E_0 15 %, height E_3 8 m, E_2 3,5–4 m, E_1 -, 21. 7. 2010, JKl.
17. south-south-east from r. 16, stand of hazel at the bottom of shallow valley; 49° 02' 19,3" n. l., 19° 17' 26,0" e. l., ± 7 m, 596 m, E (105°), inclination 20°, 10 × 10 m, E_2 95 %, E_1 50 %, E_0 5 %, height E_2 5 m, E_1 35/15 cm, 21. 7. 2010, JKl.
18. south-south-east from r. 17, stand of hazel along the contour line, surface locally debris; 49° 02' 15,6" n. l., 19° 17' 22,8" e. l., ± 8 m, 613 m, ESE (120°), inclination 25°, 15 × 6 m, E_3 5 %, E_2 95 %, E_1 40 %, E_0 3 %, height E_3 7–8 m, E_2 4–5 m, E_1 40/15 cm, 21. 7. 2010, JKl.
19. south-east from r. 18; 49° 02' 14,2" n. l., 19° 17' 19,5" e. l., ± 10 m, 640 m, E (90°), inclination 25°, 20 × 5 m, E_2 95 %, E_1 50 %, E_0 1 %, height E_2 5 (6) m, E_1 -, 21. 7. 2010, JKl.
20. south-south-east from r. 19, low part of hazel stand below the forest, hazel in groups, surface locally debris; 49° 02' 09,8" n. l., 19° 17' 17,3" e. l., ± 12 m, 640 m, ESE, inclination 25°, 20 × 5 m, E_2 98 %, E_1 15 %, E_0 1 %, height E_2 5 (6) m, E_1 -, 21. 7. 2010, JKl.
21. VF, v. Liptovské Revúce, part Stredná Revúca, mouth of the valley Malá Turecká, hazel stand on steep south oriented slope near the upper end of the village, surface debris (gravely-rocky); 48° 55' 33,7" n. l., 19° 10' 42,7" e. l., ± 10 m, 711 m, S (170°), inclination 35°, 10 × 8 m, E_3 20 %, E_2 90 %, E_1 60 %, E_0 10 %, height E_3 7–8 m, E_2 4 m, E_1 80–100/30 cm, 3. 8. 2010, JKl.
22. VF, v. Liptovské Revúce, part Stredná Revúca, mouth of the valley Veľká Turecká, hazel stand below the top of a little crest on right side of the valley, surface locally debris; 48° 55' 36,5" n. l., 19° 10' 50,6" e. l., ± 10 m, 728 m, N (5°), inclination 25°, 15 × 5 m, E_3 20 %, E_2 95 %, E_1 50 %, E_0 3 %, height E_3 11 m, E_2 4–5 m, E_1 -, 3. 8. 2010, JKl.
23. VF, v. Liptovské Revúce, part Stredná Revúca, stand of hazel on a small crest between the valleys Malá and Veľká Turecká, locally light, south-west from field road, slates; 48° 55' 41,2" n. l., 19° 10' 29,5" e. l., ± 7 m, 795 m, ENE (75°), inclination 35°, 5 × 10 m, E_3 30 %, E_2 85 %, E_1 50 %, E_0 1 %, height E_3 8 m, E_2 4–5 m, E_1 -, 3. 8. 2010, JKl.
24. as 23, 200 m north-west., surface with slate debris, old stand, hazel in groups; 48° 55' 42,1" n. l., 19° 10' 23,2" e. l., ± 9 m, 802 m, SSE (147°), inclination 20–25°, 10 × 10 m, E_3 10 %, E_2 95 %, E_1 50 %, E_0 5 %, height E_2 5 m, 3. 8. 2010, JKl.
25. as 21, stand of hazel on the small crest above the village, plot from two sides paled, surface locally debris, hazel in groups; 48° 55' 27,6" n. l., 19° 10' 49,6" e. l., ± 10 m, 726 m, SSW (215°), inclination 20°, 10 × 10 m, E_3 10 %, E_2 90 %, E_1 75 %, E_0 3 %, 3. 8. 2010, JKl.

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Table 1: Association *Prenantho purpurei-Coryletum avellanae* (Kulczyński 1928) Kliment et Jarolímek, nom. nov. in the Veľká Fatra Mts. A – typical variant, B – variant with *Melampyrum nemorosum*.

Tablela 1: Asociacija *Prenantho purpurei-Coryletum avellanae* (Kulczyński 1928) Kliment et Jarolímek, nom. nov. na gorovju Veľká Fatra. A – tipična varianta, B –varianta z vrsto *Melampyrum nemorosum*.

			A																	B												
	Relevé No.				1	2			2	2	2	2							2		1	1	1	1	1	1	1	1				
			1	4	1	2	2	3	1	5	3	4		5	6	7	8	0	9	0	5	2	3	4	6	8	9	7				
	Number of taxa		3	5	6	6	6	7	7	5	5	4	C_A	5	6	6	4	5	6	5	5	4	4	4	4	5	3	5	C_B	C_{Ass}		
			7	7	8	7	0	6	1	8	8	8	%	9	4	6	9	3	4	8	4	4	7	6	6	3	7	1	%	%		
	Trees																															
Fs	*Fraxinus excelsior*	E_3	.	.	.	b	.	.	b	.	.	.	20^6	.	.	.	.	.	.	.	a	.	.	.	a	.	.	.	13^5	**16^6**		
		E_2	.	.	.	.	.	.	1	1	.	+	30^3	.	.	.	.	.	.	.	.	.	r	+	.	.	.	.	13^2	**20^2**		
		E_1	.	r	+	+	.	.	+	+	+	+	70^2	r	.	.	.	.	+	+	+	r	+	+	+	r	+	+	73^2	**72^2**		
Qp, cb	*Acer campestre*	E_3	.	.	b	.	.	.	.	.	.	.	10^6	.	a	1	.	.	.	.	1	.	b	a	.	.	.	.	33^4	24^5		
		E_2	.	.	.	.	.	.	.	.	.	.	-	.	.	1	.	.	+	.	.	.	.	1	.	.	.	.	20^3	12^3		
		E_1	.	r	+	.	.	+	.	.	.	.	30^2	.	1	+	+	+	+	+	+	+	+	1	+	r	+	+	93^2	68^2		
Fs	*Fagus sylvatica*	E_3	.	.	.	.	.	.	.	.	.	.	-	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	7^3	4^3		
		E_2	.	.	.	.	.	.	.	.	1	+	20^3	.	.	.	.	+	.	.	.	.	.	.	.	+	.	.	13^2	**16^2**		
		E_1	.	.	r	r	+	+	.	.	+	+	60^2	.	r	.	.	r	r	+	r	.	.	r	.	r	+	r	60^1	**60^1**		
ta	*Acer pseudoplatanus*	E_3	.	.	.	.	b	.	1	a	.	.	**30^5**	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	**12^5**		
		E_2	.	.	.	.	1	.	1	1	.	.	**30^3**	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	7^2	**16^3**		
		E_1	.	r	r	+	r	+	+	.	+	.	70^2	r	.	r	.	.	.	r	r	+	.	+	.	.	.	.	40^1	**52^1**		
	Picea abies	E_3	.	.	.	.	.	1	.	.	.	.	10^3	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	13^3	12^3		
		E_2	.	.	.	.	.	.	.	.	.	.	-	1	1	+	.	.	+	.	.	.	.	+	.	.	.	.	33^2	20^2		
		E_1	.	.	r	.	+	r	.	.	.	.	30^1	r	r	+	.	.	r	.	.	.	r	.	r	.	.	.	40^1	36^1		
	Sorbus aucuparia	E_2	.	.	.	.	.	.	.	.	.	+	10^2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	4^2		
		E_1	.	.	r	.	.	+	.	.	.	r	30^1	.	r	.	.	.	.	.	r	.	r	r	.	.	.	.	27^1	**28^1**		
ai	*Padus *avium*	E_2	.	1	.	.	.	.	.	.	.	.	10^3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	4^3		
		E_1	.	+	.	.	.	.	.	.	.	.	10^2	+	.	.	.	.	.	.	.	.	.	.	.	r	.	r	20^1	**16^2**		
ta	*Acer platanoides*	E_3	.	.	.	.	.	.	.	.	.	1	10^3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	4^3		
		E_2	.	.	.	.	.	.	.	.	.	+	10^2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	4^2		
		E_1	.	.	.	.	r	.	r	+	.	1	**40^2**	.	.	.	.	.	.	.	.	.	.	.	r	.	.	.	7^1	20^2		
	Populus tremula	E_3	.	.	.	.	.	.	.	.	.	.	-	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	7^3	4^3		
		E_1	.	.	.	.	.	.	.	.	.	.	-	.	.	.	.	.	r	.	.	.	+	.	+	.	.	.	20^2	12^2		
ta	*Tilia platyphyllos*	E_1	.	.	.	+	.	.	.	.	.	.	10^2	r	r	.	.	.	r	r	r	.	.	r	.	.	.	.	40^1	**28^1**		
ta	*Ulmus glabra*	E_1	.	.	.	.	.	+	r	.	.	.	20^2	.	.	.	.	.	.	.	.	.	.	r	.	.	.	.	7^1	12^1		
	Shrubs																															
cp	*Corylus avellana*	E_2	5	5	5	5	4	4	5	5	5	5	100^9	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	100^9	100^9		
		E_1	+	+	+	+	+	+	+	.	+	+	90^2	.	+	+	r	+	+	+	+	+	+	+	+	+	+	.	87^2	88^2		

			A												B																	
	Relevé No.		1	4	1 1	2 2	2	3	2 1	2 5	2 3	2 4		5	6	7	8	2 0	9	1 0	1 5	1 2	1 3	1 4	1 6	1 8	1 9	1 7		
	Crataegus laevigata	E_2	1	.	+	.	1	.	1	.	.	.	40^3	1	1	+	+	1	+	.	a	1	+	1	a	a	1	1	93^3	72^3
		E_1	.	.	+	.	+	+	+	.	+	.	50^2	+	+	r	+	+	+	+	+	.	+	+	+	.	+	+	87^2	72^2
RP	*Swida sanguinea*	E_2	+	1	.	.	+	.	a	a	.	.	50^3	.	1	+	+	.	.	+	.	+	.	.	+	+	.	.	47^2	48^3
		E_1	+	1	+	+	1	+	+	+	+	.	90^2	.	+	+	+	+	+	r	r	r	.	.	+	+	+	+	80^2	84^2
ai	*Viburnum opulus*	E_2	.	.	.	.	.	.	.	.	.	+	10^2	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	7^2	8^2
		E_1	.	+	+	+	.	r	+	r	+	+	80^2	.	+	+	+	+	r	+	+	r	+	+	+	+	+	r	93^2	$\mathbf{88^2}$
QF	*Lonicera xylosteum*	E_2	+	+	+	.	.	+	+	+	.	.	60^2	+	+	+	.	.	.	.	.	.	.	.	a	.	.	+	33^3	44^2
		E_1	+	+	+	+	+	1	+	.	.	.	70^2	.	1	1	+	+	+	.	.	.	.	.	+	+	+	+	60^2	64^2
RP	*Prunus spinosa*	E_2	.	.	.	.	.	.	+	.	.	.	10^2	.	.	.	1	+	.	.	.	.	.	.	.	.	.	.	13^3	12^2
		E_1	.	r	r	.	.	r	r	.	.	.	40^1	.	r	+	1	+	.	.	r	r	+	+	+	+	+	.	73^2	60^2
	Rosa canina	E_2	+	.	.	.	.	.	.	.	.	.	10^2	.	.	.	.	.	.	.	.	+	+	.	.	r	+	.	27^2	20^2
		E_1	+	r	.	r	r	+	.	.	.	.	50^1	.	r	.	.	r	r	r	r	r	.	+	.	r	.	.	53^1	52^1
Qp	*Viburnum lantana*	E_2	.	.	.	.	+	+	.	.	.	.	20^2	+	.	.	+	.	.	.	.	.	.	.	.	.	.	+	20^2	20^2
		E_1	.	.	r	.	r	+	.	+	.	.	40^2	+	+	+	.	r	r	.	.	.	.	.	r	r	.	.	47^1	44^1
Qp, RP	*Ligustrum vulgare*	E_2	.	.	.	.	.	+	.	.	.	.	10^2	.	+	.	+	.	.	.	.	.	.	.	.	.	.	.	13^2	12^2
		E_1	.	+	.	.	.	+	.	.	.	.	20^2	+	.	+	.	r	.	.	.	.	+	+	.	.	.	.	33^2	28^2
Fs	*Daphne mezereum*	E_2	.	.	.	.	.	.	.	.	.	.	-	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	7^2	4^2
		E_1	.	.	+	.	.	.	.	.	.	.	10^2	+	+	+	.	r	.	.	.	.	+	.	.	.	.	.	33^2	24^2
	Crataegus curvisepala	E_2	.	.	.	.	.	.	a	+	+	.	30^3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	12^3
		E_1	.	.	.	r	.	.	+	r	r	.	40^1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	16^1
as	*Sambucus nigra*	E_2	.	.	.	.	.	+	.	+	.	.	$\mathbf{20^2}$	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	8^2
		E_1	+	+	.	r	.	1	.	.	.	.	$\mathbf{40^2}$	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	16^2
	Crataegus monogyna	E_2	.	+	.	.	.	.	.	.	.	.	10^2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	4^2
		E_1	.	+	.	.	.	.	.	.	.	.	10^2	.	+	.	.	.	.	.	.	.	+	.	.	.	.	.	13^2	12^2
	Rosa pendulina	E_2	.	.	.	.	+	.	1	.	.	.	$\mathbf{20^3}$	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	8^3
		E_1	.	.	.	.	.	.	+	.	.	.	10^2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	4^2
Qp, RP	*Euonymus europaeus*	E_2	.	.	.	.	.	.	.	.	.	.	-	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	$\mathbf{7^2}$	4^2
		E_1	.	.	.	.	.	.	.	.	.	.	-	.	.	.	.	.	.	.	.	.	.	.	.	r	.	+	$\mathbf{13^2}$	8^2
ta	*Ribes uva-crispa*	E_1	.	+	.	.	+	r	.	+	+	+	60^2	+	.	+	.	.	.	.	.	.	.	.	+	+	.	.	27^2	$\mathbf{40^2}$
RP	*Rhamnus catharticus*	E_1	.	.	.	.	.	r	.	.	.	.	10^1	.	r	r	.	.	r	r	.	.	r	.	.	r	.	.	$\mathbf{40^1}$	28^1
	Frangula alnus	E_1	.	.	.	.	.	.	.	.	.	.	-	.	+	.	.	.	.	.	.	.	r	.	.	.	r	.	$\mathbf{20^1}$	12^1
	Differential taxa of association																													
	Ajuga reptans		r	+	+	+	.	.	.	+	+	+	70^2	+	+	+	.	+	+	.	+	1	+	.	+	+	+	.	73^2	$\mathbf{72^2}$
	Campanula rapunculoides		+	.	+	+	+	+	.	.	.	+	60^2	.	+	+	.	1	+	1	.	+	1	+	.	1	+	+	73^2	$\mathbf{68^2}$
Fs	*Galeobdolon luteum*		.	.	1	1	+	.	a	+	1	3	70^4	+	.	.	1	+	1	.	+	+	.	+	.	+	.	3	60^3	$\mathbf{64^3}$
Fs	*Dryopteris filix-mas*		+	+	+	+	.	.	+	+	+	+	80^2	+	.	+	.	.	+	r	r	.	.	r	+	.	.	.	47^2	$\mathbf{60^2}$
ta, fs	*Actaea spicata*		+	+	.	+	.	+	+	.	1	+	70^2	1	+	+	.	.	+	.	.	.	.	r	1	.	.	+	47^2	$\mathbf{56^2}$

	Astrantia major		1	+	a	+	.	.	+	+	.	.	60^{3}	.	.	.	a	+	a	a	+	+	+	.	.	.	.	r	53^{3}	**56^{3}**
	Cruciata glabra		.	.	.	+	.	+	.	+	+	.	40^{2}	.	+	+	+	+	+	+	.	+	.	.	+	+	+	.	67^{2}	**56^{2}**
	Maianthemum bifolium		.	.	1	+	+	r	+	+	.	.	60^{2}	+	+	.	+	.	1	+	+	.	+	.	.	.	.	.	47^{2}	**52^{2}**
	Chaerophyllum aromaticum		.	.	.	+	.	+	r	.	.	+	40^{2}	.	.	r	r	.	+	+	r	+	.	r	.	.	+	r	60^{1}	**52^{2}**
Fs	*Paris quadrifolia*		.	+	+	+	.	.	+	+	+	.	60^{2}	+	+	+	.	.	.	r	+	.	.	r	.	.	.	.	40^{2}	**48^{2}**
fs	*Dentaria bulbifera*		.	.	+	.	+	.	.	.	+	.	30^{2}	+	.	1	+	+	+	+	+	+	.	1	.	.	.	.	60^{2}	**48^{2}**
	Senecio germanicus		.	r	+	+	.	.	+	.	+	+	60^{2}	+	+	1	r	.	.	.	.	.	.	.	.	.	.	.	27^{2}	**40^{2}**
Fs	*Tithymalus amygdaloides*		.	.	+	.	.	.	r	r	+	.	40^{2}	.	+	.	+	+	+	+	+	.	.	.	.	.	.	.	40^{2}	**40^{2}**
	Oxalis acetosella		+	b	1	+	.	+	.	.	+	.	60^{3}	.	.	.	.	.	m	.	+	.	+	.	.	.	.	.	20^{3}	**36^{3}**
Fs	*Carex digitata*		.	.	.	+	.	+	+	.	.	.	30^{2}	+	+	+	+	.	.	.	+	.	.	.	.	+	.	.	40^{2}	**36^{2}**
ai	*Stachys sylvatica*		.	+	+	.	+	.	.	r	.	.	40^{2}	.	.	+	.	.	.	.	.	.	.	.	.	.	.	r	13^{2}	**24^{2}**
cf	*Carex alba*		.	.	+	.	.	.	.	1	.	.	20^{3}	+	.	+	.	.	.	.	.	.	.	.	.	+	+	.	27^{2}	**24^{2}**
Fs	*Cardamine impatiens*		.	.	r	.	.	.	.	+	r	.	30^{1}	.	.	.	.	.	r	.	.	+	.	r	.	.	.	.	20^{1}	**24^{1}**
Fs	*Carex sylvatica*		.	.	+	.	.	+	.	.	.	+	30^{2}	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	7^{2}	**16^{2}**
	Differential taxa of the variants																														
Fs	*Geranium robertianum*		+	+	+	1	r	+	1	+	+	+	**100^{2}**	.	.	+	.	r	.	.	.	.	.	.	.	1	.	+	27^{2}	56^{2}
QF	*Poa nemoralis*		.	+	+	+	+	+	1	+	+	1	**90^{2}**	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	7^{2}	40^{2}
Fs	*Mercurialis perennis*		4	a	3	3	1	.	a	4	.	.	**70^{6}**	.	.	.	.	+	.	+	.	.	.	.	+	+	+	.	33^{2}	**48^{4}**
	Rubus idaeus		+	+	.	+	.	+	.	+	a	a	**70^{3}**	.	.	.	.	.	+	.	.	.	.	+	.	.	.	.	13^{2}	**36^{3}**
Fs	*Galium odoratum*		.	.	.	+	1	a	1	1	a	1	**70^{3}**	.	.	+	.	.	.	.	r	.	.	+	.	.	.	.	20^{2}	**40^{3}**
Fs	*Ranunculus lanuginosus*		+	+	+	1	.	.	.	.	+	.	**50^{2}**	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	7^{2}	**24^{2}**
cf	*Rubus saxatilis*		.	.	r	r	.	.	+	+	+	.	**50^{2}**	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	20^{2}
fs	*Polygonatum verticillatum*		.	.	+	1	.	.	1	1	+	.	**50^{3}**	.	.	.	.	.	+	.	+	.	.	.	.	.	.	.	13^{2}	**28^{2}**
	Geranium phaeum		.	.	.	+	r	.	.	r	+	r	**50^{1}**	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	20^{1}
Fs	*Senecio ovatus*		.	.	+	.	.	+	.	+	+	.	**40^{2}**	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	**16^{2}**
Qp, cb	*Convallaria majalis*		.	.	+	+	.	.	1	+	.	.	**40^{2}**	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	7^{2}	20^{2}
	*Valeriana *sambucifolia*		.	.	.	+	.	+	+	.	.	r	**40^{2}**	.	.	r	.	.	.	.	.	.	.	.	.	.	.	.	7^{1}	20^{2}
Fs	*Milium effusum*		.	+	.	+	+	.	.	.	.	.	**30^{2}**	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	12^{2}
fs	*Prenanthes purpurea*		.	.	r	.	.	.	+	.	+	.	**30^{2}**	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	**12^{2}**
Fs	*Epilobium montanum*		.	.	.	r	.	r	.	.	+	.	**30^{1}**	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	12^{1}
	Lapsana communis		.	.	.	r	.	+	r	.	.	.	**30^{1}**	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	12^{1}
cf	*Digitalis grandiflora*		.	.	.	.	.	.	r	.	r	r	**30^{1}**	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	**12^{1}**
	Luzula luzuloides		.	.	.	+	+	.	.	.	.	.	**20^{2}**	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	8^{2}
	Brachythecium populeum	E_0	+	+	+	.	+	.	.	+	.	1	**60^{2}**	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	7^{2}	28^{2}
	Pseudoleskeella nervosa	E_0	.	.	.	+	+	+	+	.	.	.	**40^{2}**	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	16^{2}
cb, tm	*Melampyrum nemorosum*		.	.	+	.	1	.	.	.	.	.	20^{3}	1	1	+	+	.	+	+	+	+	+	.	.	+	.	+	**73^{2}**	**52^{2}**
Fs	*Neottia nidus-avis*		.	.	.	.	.	r	.	.	.	.	10^{1}	+	r	r	+	r	r	r	r	+	.	.	.	r	.	.	**67^{1}**	**44^{1}**
TG	*Betonica officinalis*		.	.	.	.	.	.	.	r	.	.	10^{1}	+	.	+	+	+	+	+	r	+	r	.	.	.	.	.	**60^{2}**	40^{2}
	Listera ovata		.	.	+	.	.	.	.	.	.	.	10^{2}	.	.	.	+	.	+	+	+	+	+	r	.	.	.	.	**47^{2}**	**32^{2}**
cf	*Cirsium erisithales*		.	r	.	.	.	.	.	.	.	.	10^{1}	r	+	+	+	.	.	r	r	.	.	.	.	.	.	.	**40^{2}**	**28^{1}**

	Relevé No.		A											B																	
			1	4	11	22	2	3	21	25	23	24		5	6	7	8	20	9	10	15	12	13	14	16	18	19	17		
	Hieracium murorum		.	.	.	.	.	.	.	.	.	.	-	+	1	+	.	.	.	r	.	.	.	.	.	.	.	.	**27**[2]	16[2]
	Hypericum hirsutum		.	.	.	.	.	.	.	.	.	.	-	r	.	+	.	.	.	.	.	.	.	.	.	r	.	.	**20**[1]	12[1]
	Ranunculus acris		.	.	.	.	.	.	.	.	.	.	-	.	.	.	.	.	+	+	.	.	r	.	.	.	.	.	**20**[2]	12[2]
	Brachythecium rutabulum	E_0	.	.	.	.	.	.	.	.	.	.	-	.	.	+	+	+	+	+	+	+	+	.	.	.	.	.	**53**[2]	32[2]
	Plagiomnium affine	E_0	.	.	.	+	.	1	.	.	.	.	20[3]	+	+	+	.	+	.	.	.	.	+	.	+	.	.	+	**47**[2]	36[2]
	Fagetalia sylvaticae																													
	Asarum europaeum		1	b	a	a	+	1	+	1	b	1	100[4]	1	1	a	1	a	a	b	a	a	1	1	b	b	3	b	100[5]	100[4]
	Campanula trachelium		r	r	+	+	r	+	+	+	+	+	100[2]	+	1	1	+	+	.	+	+	+	+	+	+	+	+	+	93[2]	96[2]
	Aegopodium podagraria		b	3	a	+	a	+	b	+	.	.	80[4]	a	b	+	b	+	+	.	+	1	+	.	+	+	+	+	87[3]	84[3]
	Pulmonaria obscura		+	1	1	+	+	.	.	.	.	.	50[2]	+	+	.	+	+	.	1	1	.	1	1	1	1	1	a	80[3]	68[3]
	Polygonatum multiflorum		.	1	+	.	r	+	+	+	.	.	60[2]	.	+	+	r	r	r	r	.	.	r	.	+	.	r	+	67[1]	64[2]
	Viola reichenbachiana		.	.	.	.	+	+	+	+	+	+	60[2]	+	.	+	.	.	+	.	.	.	.	+	.	+	+	+	47[2]	52[2]
	Anemone ranunculoides		1	1	+	.	.	.	.	.	.	.	30[3]	+	.	.	+	.	+	+	+	+	.	.	.	.	.	+	47[2]	40[2]
	Mycelis muralis		.	.	.	.	.	+	.	.	r	+	30[2]	.	+	+	.	.	r	.	r	.	.	.	r	+	.	.	40[2]	36[2]
	Symphytum tuberosum		1	+	+	+	+	.	.	.	.	.	50[2]	.	.	r	+	.	.	+	.	.	+	.	.	.	.	.	27[2]	36[2]
ca	*Galium schultesii*		.	.	+	.	3	+	.	.	+	.	40[3]	.	1	.	.	.	.	+	+	.	.	.	.	.	.	.	20[2]	28[3]
	Sanicula europaea		.	.	a	.	.	1	.	.	.	.	20[4]	+	+	.	.	.	.	.	+	.	+	.	.	.	.	.	27[2]	24[3]
	Scrophularia nodosa		.	.	.	.	.	.	.	.	+	r	20[2]	.	.	.	.	.	r	.	.	.	r	.	.	.	.	+	20[1]	20[1]
	Lilium martagon		.	.	.	.	+	.	.	.	.	.	10[2]	.	.	.	.	+	.	+	.	.	.	.	.	.	.	.	13[2]	12[2]
	Glechoma hirsuta		.	.	.	.	.	.	+	.	.	.	10[2]	.	.	.	.	.	.	.	.	.	.	.	.	r	+	.	13[2]	12[2]
	Galeobdolon montanum		a	a	.	.	.	.	.	.	.	.	20[5]	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	8[5]
	Quercetalia pubescenti-petraeae																													
TG	*Clinopodium vulgare*		.	.	.	+	.	.	.	.	+	r	30[2]	.	.	.	+	r	.	.	.	.	.	.	.	+	.	.	20[2]	24[2]
TG	*Vincetoxicum hirundinaria*		.	.	.	.	.	.	.	.	r	.	10[1]	.	.	.	.	.	.	.	.	.	.	.	+	r	r	r	27[1]	20[1]
cf	*Campanula persicifolia*		.	.	.	.	.	+	.	.	.	.	10[2]	r	.	.	.	.	.	.	.	r	.	.	.	.	.	.	13[1]	12[1]
	Fragaria moschata		.	.	.	.	.	.	.	.	.	.	-	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	13[2]	8[2]
	Querco-Fagetea																													
	Melica nutans		.	+	+	+	.	.	1	+	+	+	70[2]	+	1	+	+	+	+	+	+	+	+	.	+	+	1	+	93[2]	84[2]
	Brachypodium sylvaticum		.	.	+	+	.	+	.	.	.	+	40[2]	+	+	.	+	.	+	.	+	.	.	.	.	.	+	.	40[2]	40[2]
Qp, cb	*Pyrethrum corymbosum*		.	.	+	.	r	+	.	.	.	.	30[2]	.	.	.	.	.	+	+	+	r	.	.	.	.	.	.	27[2]	28[2]
Qp, cb	*Carex montana*		.	.	.	.	+	+	.	.	.	.	20[2]	.	.	.	+	+	.	+	.	.	.	.	.	.	.	.	20[2]	20[2]
	Other taxa																													
	Fragaria vesca		.	+	.	+	+	+	+	+	1	.	70[2]	1	b	+	+	+	+	1	a	+	1	+	+	+	a	+	100[3]	88[3]
	Heracleum sphondylium		.	.	.	+	+	+	+	+	r	+	70[2]	.	+	+	+	+	+	+	.	+	r	.	r	+	+	r	80[2]	76[2]
	Primula elatior		.	+	+	+	+	1	.	.	+	+	70[2]	+	.	.	r	+	+	+	+	+	+	+	.	+	+	.	73[2]	72[2]
	Salvia glutinosa		.	+	+	.	.	.	a	1	.	1	50[3]	+	1	1	.	+	.	.	.	.	.	+	a	a	+	1	60[3]	56[3]
	Geum urbanum		+	r	.	+	.	+	.	+	+	+	70[2]	.	.	.	.	.	+	.	+	.	.	+	r	+	.	+	40[2]	52[2]

	Taraxacum officinale	.	+	.	.	r	r	+	.	.	.	40^{2}	.	.	+	.	.	r	.	r	.	.	.	.	r	r	r	40^{1}	40^{1}
	Urtica dioica	+	.	.	+	.	+	+	.	.	1	50^{2}	.	.	.	.	.	+	.	.	+	.	+	.	.	.	.	20^{2}	32^{2}
	Epipactis helleborine	.	.	.	r	.	.	+	r	.	.	30^{1}	+	+	r	.	r	.	.	.	.	.	.	.	.	.	.	27^{2}	28^{1}
	Veronica chamaedrys	.	.	.	.	.	+	.	.	r	+	30^{2}	.	.	.	.	.	+	+	.	.	r	.	.	.	.	r	27^{2}	28^{2}
	Anthriscus sylvestris	.	.	.	+	.	+	.	.	.	.	20^{2}	.	.	.	.	.	.	r	.	+	.	+	.	.	.	+	27^{2}	24^{2}
cf	*Pimpinella major*	.	.	.	r	.	.	+	.	r	.	30^{1}	.	.	.	.	r	.	r	.	.	.	.	.	.	.	.	13^{1}	20^{1}
	Lysimachia nummularia	.	.	.	.	r	.	.	.	.	.	10^{1}	+	.	+	.	.	.	.	.	.	.	.	.	.	.	+	20^{2}	16^{2}
	Galium aparine	+	+	.	.	.	.	.	.	.	.	20^{2}	.	.	.	.	.	r	.	.	.	.	+	.	.	.	.	13^{2}	16^{2}
	Hieracium lachenalii	.	.	.	.	.	.	+	.	+	.	20^{2}	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	7^{2}	12^{2}
	Colchicum autumnale	.	.	.	.	+	.	.	.	.	.	10^{2}	.	.	.	+	.	.	.	.	+	.	.	.	.	.	.	13^{2}	12^{2}
	Orchis pallens	.	.	.	.	r	+	.	.	.	.	20^{2}	.	.	.	.	.	r	.	.	.	.	.	.	.	.	.	7^{1}	12^{1}
	Luzula luzulina	.	+	.	.	.	.	.	.	.	.	10^{2}	+	.	.	.	.	.	.	.	r	.	.	.	.	.	.	13^{2}	12^{2}
	Dactylis glomerata	.	r	+	.	.	.	.	.	.	.	20^{2}	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	7^{2}	12^{2}
	Ranunculus repens	.	.	.	.	.	r	.	.	.	r	20^{1}	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	8^{1}
	Senecio umbrosus	.	.	.	.	.	.	.	.	.	.	-	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	13^{2}	8^{2}
cf	*Solidago virgaurea*	.	.	.	.	.	.	.	.	.	.	-	.	r	.	r	.	.	.	.	.	.	.	.	.	.	.	13^{1}	8^{1}
	Dryopteris carthusiana	.	.	.	.	.	.	.	.	.	.	-	.	.	r	.	r	.	.	.	.	.	.	.	.	.	.	13^{1}	8^{1}
	*Orchis *signifera*	.	.	.	.	.	.	.	.	.	.	-	.	.	.	r	.	.	r	.	.	.	.	.	.	.	.	13^{1}	8^{1}
	Crepis mollis	.	.	.	.	.	.	.	.	.	.	-	.	.	.	.	.	+	+	.	.	.	.	.	.	.	.	13^{2}	8^{2}
	Hypericum maculatum	.	.	.	.	.	.	.	.	.	.	-	.	.	.	.	.	.	r	.	r	.	.	.	.	.	.	13^{1}	8^{1}
	Bryophytes																											
	Plagiomnium undulatum	+	.	+	.	.	b	.	.	.	.	30^{3}	+	.	+	+	+	.	+	.	.	+	.	+	+	.	+	60^{2}	48^{2}
	Brachythecium salebrosum	.	.	1	.	.	+	+	.	.	.	30^{2}	.	.	.	.	+	.	+	+	.	.	+	.	.	.	+	33^{2}	32^{2}
	Eurchynchium hians	.	+	.	.	.	.	+	.	+	.	30^{2}	+	.	.	.	.	.	.	.	+	+	.	.	+	.	.	27^{2}	28^{2}
	Pterigynandrum filiforme	.	.	.	.	.	+	+	+	.	.	30^{2}	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	13^{2}	20^{2}
	Pseudoleskeella catenulata	.	.	.	.	+	+	.	.	.	.	20^{2}	.	.	.	.	.	.	.	.	.	.	.	a	1	.	1	20^{4}	20^{3}
	Brachythecium velutinum	.	+	.	.	.	+	.	.	+	.	30^{2}	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	13^{2}	20^{2}
	Hypnum cupressiforme	.	.	+	+	.	.	.	.	.	.	20^{2}	+	+	.	.	.	.	.	.	.	.	.	1	.	.	.	20^{2}	20^{2}
	Bryum subelegans	+	.	.	.	.	.	.	.	.	.	10^{2}	.	.	.	.	+	.	.	.	.	.	+	+	+	.	.	27^{2}	20^{2}
	Plagiomnium cuspidatum	.	.	.	.	+	1	.	+	.	.	30^{2}	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	7^{2}	16^{2}
	Bryum capillare	.	.	.	.	.	+	.	.	.	.	10^{2}	+	.	.	.	+	.	.	+	.	.	.	.	.	.	.	20^{2}	16^{2}
	Homalothecium lutescens	.	.	.	.	.	.	1	+	.	.	20^{3}	.	+	.	.	.	.	.	.	.	.	.	.	+	.	.	13^{2}	16^{2}
	Schistidium apocarpum	.	.	.	.	.	.	+	.	.	.	10^{2}	.	+	.	.	.	.	.	.	.	.	.	.	1	.	+	20^{2}	16^{2}
	Anomodon longifolius	.	.	+	+	.	.	.	.	.	.	20^{2}	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	7^{2}	12^{2}
	Tortella tortuosa	.	.	.	.	.	+	.	+	.	.	20^{2}	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	7^{2}	12^{2}
	Anomodon viticulosus	.	.	.	.	.	.	1	.	.	.	10^{3}	.	.	.	.	+	.	.	.	.	.	.	.	.	.	+	13^{2}	12^{2}
	Fissidens taxifolius	.	+	.	.	.	.	.	.	+	.	20^{2}	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	8^{2}
	Porella platyphylla	.	.	.	.	.	.	+	+	.	.	20^{2}	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-	8^{2}
	Thuidium erectum	.	.	.	.	.	.	.	.	.	.	-	.	.	.	.	+	+	.	.	.	.	.	.	.	.	.	13^{2}	8^{2}
	Number of accesoric taxa	4	2	4	6	7	3	4	4	4	3		5	4	3	3	1	2	1	2	2	2	1	3	0	2	2		

Table 2: Comparison of European hazel shrubs from the Veľká Fatra Mts (4, 5) with original diagnoses of relevant associations (1–3) and original diagnose of *Populo-Coryletum* (6) (a brief synoptic table).

Tabela 2: Primerjava grmišč navadne leske na gorovju Veľká Fatra (4, 5) z originalnim opisom omenjenih asociacij (1–3) in originalnim opisom asociacije *Populo-Coryletum* (6) (skrajšana sinoptična tabela).

1 – *Pruno-Coryletum* Jurko 1964, 2 – *Lonicero* (*nigrae*)*-Coryletum* (Kulcz.) em. Jurko 1964, 3 – *Coryletum avellanae* Kulczyński 1928, 4 – *Prenantho purpurei-Coryletum avellanae* (Kulczyński 1928) Kliment et Jarolímek (Tab. 1), 5 – Kontriš et al. 2002 (Tab. 1, *Pruno-Coryletum*), 6 – *Populo tremulae-Coryletum* Br.-Bl. ex Kielhauser 1954 nom. invers. propos.

	Number of column		1	2	3	4	5	6
	Number of relevés		19	28	4	25	4	6
	Average number of taxa		23	28	?	46	36	24
	Differential taxa of *Pruno-Coryletum* (1) against *Lonicero nigrae-Coryletum* (2)							
RP	*Prunus spinosa*	E_2	**74**$^{+-1}$	14^{+-2}	40^{r}	60^{r-2}	4^{+-2}	-
	Rosa canina	E_2	**79**$^{+-1}$	18^{+-1}	40^{1}	60^{r-2}	3^{+-1}	33^{+}
Qp, cb	*Acer campestre*	E_2	**58**$^{+-2}$	7^{+}	-	68^{r-2}	3^{+-1}	-
	Galium mollugo agg.		**58**$^{+-1}$	-	20^{r}	-	2^{+-1}	83^{+-2}
Qp, RP	*Ligustrum vulgare*	E_2	**47**$^{+-2}$	4^{+}	-	36^{r-+}	1^{+}	16^{+}
TG	*Fragaria viridis*		**42**$^{+-1}$	7^{+}	-	-	-	-
	Crataegus curvisepala	E_2	**42**$^{+-1}$	-	-	16^{r-2}	-	-
Qp	*Viburnum lantana*	E_2	**32**$^{+-2}$	4^{+}	-	52^{r-+}	2^{+}	66^{+-1}
cb	*Carpinus betulus*	E_2	**32**$^{+-1}$	4^{1}	20^{1}	4^{+}	-	-
Qp, TG	*Clinopodium vulgare*		**26**$^{+-2}$	-	-	24^{r-+}	3^{+}	-
Qp, cb	*Cruciata laevipes*		**26**$^{+-2}$	4^{+}	-	-	-	-
QF	*Viola mirabilis*		**26**$^{+-2}$	-	-	4^{r}	-	-
ai	*Rubus caesius*		**26**$^{+-1}$	-	-	4^{+}	-	-
Qp	*Cornus mas*	E_2	**21**$^{+-2}$	-	-	-	-	-
Qp, RP	*Euonymus europaeus*	E_2	**21**$^{+-1}$	-	-	-	-	33^{+}
	Differential taxa of *Prenantho-Coryletum* (2–4)							
Fs	*+Mercurialis perennis*		16$^{1-3}$	**64**$^{+-3}$	**40**^{1}	**48**$^{+-4}$	2^{2}	-
	Rubus idaeus		5^{2}	**61**$^{+-2}$	**40**^{1}	**36**$^{+-2}$	1^{1}	-
fs	*+Polygonatum verticillatum*		-	**57**$^{+-2}$	**60**^{1}	**28**$^{+-1}$	-	-
	+Luzula luzuloides		-	**46**$^{+-2}$	**60**$^{r-1}$	**8**$^{+}$	1^{1}	50^{+-3}
Fs	*+Paris quadrifolia*		5^{+}	**43**$^{+-1}$	**40**^{1}	**48**$^{r-+}$	-	50^{+}
	Oxalis acetosella		-	**39**$^{+-1}$	**40**$^{1-2}$	**36**$^{+-2}$	-	66^{+-2}
	Astrantia major		5^{1}	**36**$^{+-3}$	**80**$^{1-2}$	**56**$^{r-2}$	-	-
ta, fs	*+Actaea spicata*		-	**36**$^{+-2}$	**40**^{2}	**56**$^{r-1}$	2^{+-1}	83^{+-3}
ss	*+Salix caprea*	E_2	5^{+}	**36**$^{+-2}$	**40**^{1}	**8**^{3}	-	-
ai	*Viburnum opulus*	E_2	5^{+}	**32**$^{+-2}$	**40**^{1}	**92**$^{r-+}$	2^{+}	-
fs	*+Prenanthes purpurea*		-	**25**$^{+-2}$	**80**^{1}	**12**$^{r-+}$	-	-
	Frangula alnus	E_2	5^{+}	**25**$^{+-1}$	**40**^{1}	**12**$^{r-1}$	2^{+}	-
Fs	*Ranunculus lanuginosus*		-	**14**$^{+-1}$	**100**$^{r-2}$	**24**$^{+-1}$	-	-
cf	*Cirsium erisithales*		-	**11**$^{+}$	**100**$^{1-2}$	**28**$^{r-+}$	-	-
cf	*Digitalis grandiflora*		-	**11**$^{+}$	**100**$^{1-2}$	**12**^{r}	1^{+}	-
cb, tm	*#Melampyrum nemorosum*		-	**11**$^{+}$	**80**^{2}	**52**$^{+-1}$	-	-
	+Gentiana asclepiadea		-	**25**$^{+-1}$	**80**$^{1-2}$	-	-	-
	Aruncus vulgaris		-	**21**$^{+-3}$	**40**^{2}	4^{+}	-	-

	Number of relevés		19	28	4	25	4	6
	Geum rivale		-	**18**$^{+-1}$	**40**^{1}	-	-	-
ta	*+Acer pseudoplatanus*	E_2	5^{+}	**46**$^{+-1}$	-	**56**$^{r-1}$	-	-
Fs	*+Fagus sylvatica*	E_2	-	**39**$^{+-2}$	-	**60**$^{r-1}$	-	-
ta	*Ribes uva-crispa*		16^{+}	**39**$^{+-1}$	-	**40**$^{r-+}$	1^{1}	-
Fs	*Senecio ovatus*		-	**36**$^{+-1}$	-	**16**$^{+}$	-	-
	+$Populus tremula	E_2	-	**29**$^{+-1}$	-	**12**$^{r-+}$	-	100^{+-2}
Fs	*Dentaria bulbifera*		-	**25**$^{+-1}$	-	**48**$^{+-1}$	-	-
	+Sorbus aucuparia	E_2	-	**25**$^{+-1}$	-	**28**$^{r-+}$	1^{+}	33^{+-1}
ai	*Padus avium*	E_2	-	**25**$^{+-1}$	-	**16**$^{r-1}$	-	16^{3}
Fs	*Daphne mezereum*		-	**21**$^{+}$	-	**24**$^{r-+}$	1^{+}	16$^{(+)}$
Fs	*+Fraxinus excelsior*	E_2	-	**14**$^{+}$	-	**72**$^{r-1}$	1^{+}	16^{+}
	+Rosa pendulina	E_2	5^{+}	**65**$^{+-2}$	-	8^{+-1}	-	-
ai	*+Lamium maculatum*		5^{+}	**46**$^{+-1}$	-	4^{r}	-	-
	Angelica sylvestris		-	**39**$^{+-1}$	-	4^{+}	2^{+-1}	-
	Phyteuma spicatum		-	**39**$^{+-1}$	-	4^{r}	1^{+}	-
	+Lonicera nigra	E_2	-	**36**$^{+-1}$	-	-	1^{1}	-
ac	*+Ranunculus platanifolius*		-	**25**$^{+-1}$	-	-	-	-
	Ajuga reptans		-	-	**100**$^{r-2}$	**72**$^{r-1}$	4^{+-2}	-
	Cruciata glabra		5^{+}	-	**100**$^{1-3}$	**56**$^{+}$	1^{2}	-
	Maianthemum bifolium		5^{+}	-	**100**^{2}	**52**$^{r-1}$	-	83^{+-2}
Fs	*Tithymalus amygdaloides*		5^{+}	11^{+}	**100**$^{r-2}$	**40**$^{r-+}$	-	-
	Campanula rapunculoides		-	-	**80**$^{1-2}$	**68**$^{+-1}$	1^{+}	33^{+-1}
Fs	*#Carex sylvatica*		-	4^{+}	**80**$^{1-2}$	**16**$^{+}$	-	-
Fs	*Galeobdolon luteum* s. l.		5^{1}	14^{+-1}	**60**$^{r-1}$	**72**$^{+-3}$	-	-
Fs	*+Dryopteris filix-mas*		11^{+}	25^{+}	**60**^{1}	**60**$^{r-+}$	3^{+-1}	16^{+}
	Chaerophyllum aromaticum		5^{+}	21^{+}	**60**$^{1-2}$	**52**$^{r-+}$	-	-
Fs	*Galium odoratum*		5^{1}	21^{+-2}	**60**$^{1-2}$	**40**$^{r-2}$	-	-
Fs	*Carex digitata*		5^{+}	-	**60**^{1}	**36**$^{+}$	1^{1}	-
	Listera ovata		-	-	**60**^{1}	**32**$^{r-+}$	-	-
	#Luzula luzulina		-	-	**60**$^{r-1}$	**12**$^{r-+}$	-	-
ai	*Stachys sylvatica*		-	-	**40**^{1}	**24**$^{r-+}$	-	-
Fs	*Neottia nidus-avis*		-	-	-	**44**$^{r-+}$	-	-
	Senecio germanicus		-	-	-	**40**$^{+-1}$	-	-
ta	*Tilia platyphyllos*		-	-	-	**28**$^{r-+}$	-	-
cf	*Carex alba*		-	-	-	**24**$^{r-+}$	2$^{1-2}$	-
Fs	*Cardamine impatiens*		-	4^{+}	-	**24**$^{r-+}$	-	16^{+}
	Rhamno-Prunetea							
pc	*Corylus avellana*	E_2	100$^{3-5}$	100$^{3-5}$	100^{4}	100$^{4-5}$	4$^{2-5}$	100$^{3-4}$
	Swida sanguinea	E_2	47^{+-2}	29^{+-3}	40^{1}	84^{r-2}	3$^{1-4}$	50^{+-2}
pc	*Rosa glauca*	E_2	32^{+-1}	50^{+-2}	-	-	-	-
	Rhamnus catharticus	E_2	16^{+-2}	-	-	28^{r}	-	50^{+-1}
as	*Sambucus nigra*	E_2	-	4+	-	20^{r-1}	-	-
ss	*Rubus hirtus agg.*		-	-	40^{2}	-	-	-
	Fagetalia sylvaticae							
	Asarum europaeum		58^{+-2}	79^{+-2}	100^{2}	100^{+-3}	3$^{2-3}$	-
	Aegopodium podagraria		42^{+-2}	50^{+-2}	80$^{1-2}$	84^{+-3}	2^{+-1}	83$^{1-2}$
	Campanula trachelium		42^{+-1}	43^{+-1}	40^{1}	96^{r-1}	3^{+}	83^{+-1}
	Viola reichenbachiana		42^{+-1}	18^{+}	80^{2}	52^{+}	2^{+}	66^{+-1}
	Pulmonaria officinalis agg.		32^{+-2}	43^{+-3}	60^{1}	68^{+-2}	1^{1}	-
	Sanicula europaea		11^{1}	11^{+-2}	80^{1}	24^{+-2}	1^{+}	-

	Number of relevés		19	28	4	25	4	6
	Geranium robertianum		58^{+-3}	36^{+-2}	-	56^{r-1}	1^{+}	33^{1}
	Mycelis muralis		11^{+}	11^{+}	-	36^{r-+}	2^{+}	-
	Polygonatum multiflorum		21^{+-1}	21^{+-1}	40^{1}	64^{r-1}	-	-
cb	*Galium schultesii*		11^{+-1}	39^{+-2}	60^{1}	28^{r-3}	-	-
	Lathyrus vernus		11^{+}	4^{+}	60^{1}	8^{r-+}	-	-
	Symphytum tuberosum		11^{+-2}	29^{+-2}	-	36^{r-1}	-	-
	Scophularia nodosa		5^{+}	14^{+}	-	20^{r-+}	-	-
cb	*Stellaria holostea*		21^{+-2}	7^{+-2}	-	-	-	-
	+*Isopyrum thalictroides*		11^{+}	18^{+-2}	-	-	-	-
	$*Lilium martagon*		-	14^{+}	40^{1}	12^{+}	-	33^{+-1}
	Milium effusum		-	4^{+}	-	12^{+}		-
ta	*Ulmus glabra*	E_2	-	4^{+}	-	12^{r-+}	-	-
fs	*Dentaria glandulosa*		-	14^{+-1}	-	-	-	-
	Myosotis sylvatica		-	-	40^{1}	-	-	-
ta	*Acer platanoides*	E_2	-	-	-	20^{r-1}	1^{1}	-
	Fraxinus excelsior	E_3	-	-	-	16^{2}	-	-
ta	*Acer pseudoplatanus*	E_3	-	-	-	12^{1-2}	-	-
	Quercetalia pubescenti-petraeae							
	Pulmonaria mollis		11^{+}	4^{+}	-	-	2^{+-1}	-
gs	*Teucrium chamaedrys*		16^{+}	-	-	-	-	-
	Viola hirta		16^{+-1}	-	-	-	-	-
TG	*Brachypodium pinnatum*		11^{+-2}	-	-	-	-	-
	$*Polygonatum odoratum*		11^{+}	-	-	-	-	66^{+-1}
	Potentilla alba		11^{+}	-	-	-	-	-
	Quercus cerris	E_2	11^{+}	-	-	-	-	-
	Quercus robur	E_2	11^{1}	-	-	-	-	-
	Viola odorata		11^{+}	-	-	-	-	-
TG	*Vincetoxicum hirundinaria*		-	-	-	20^{r-+}	2^{+-1}	-
	Querco-Fagetea							
	Poa nemoralis		63^{+-1}	68^{+-2}	80^{1-2}	40^{+-1}	1^{1}	50^{+-1}
	Melica nutans		26^{+-1}	50^{+-1}	80^{2}	84^{+-1}	3^{+-2}	50^{1-2}
	#*Brachypodium sylvaticum*		16^{+-1}	4^{+}	60^{1}	40^{+}	3^{1-2}	16^{+}
Qp, cb	*Pyrethrum corymbosum*		16^{+-1}	4^{+}	40^{2}	28^{r-+}	2^{+}	-
	Lonicera xylosteum	E_2	47^{+}	36^{+-1}	80^{1-2}	72^{+-2}	-	66^{+-1}
Qp, cb	*Quercus petraea* agg.	E_2	11^{+-1}	-	-	-	-	-
	Hedera helix		-	4^{+}	40^{r}	-	-	16^{+}
	Anemone ranunculoides		-	4^{+}	-	40^{+-1}	-	-
	Bromus benekenii		-	-	40^{1}	4^{+}	2^{1-2}	-
Qp, cb	*Convallaria majalis*		-	-	60^{1}	20^{+-1}	-	50^{1-2}
cb	*Cerasus avium*	E_2	-	-	20	12^{2}	-	16^{+}
	Tilia cordata	E_2	-	-	40^{1}	-	-	-
	Acer campestre	E_3	-	-	-	24^{1-2}	-	-
Qp, cb	*Carex montana*		-	-	-	20^{+}	-	-
	Trifolio-Geranietea							
	Betonica officinalis		11^{+}	4^{+}	-	40^{r-+}	-	-
Qp	*Origanum vulgare*		5^{1}	-	40^{1}	-	-	-
tm	*Vicia sylvatica*		-	-	60^{1}	-	-	-
tm	*Trifolium flexuosum*		-	-	40^{1}	-	-	-
	Veronica teucrium		-	-	-	-	-	33^{+}

	Number of relevés		19	28	4	25	4	6
	Other taxa							
	Fragaria vesca		42^{+-2}	21^{+-2}	80^{2}	88^{+-2}	4^{+-1}	50^{+}
	Heracleum sphondylium		32^{+}	54^{+-1}	20^{r}	76^{r-+}	3^{+}	-
	Crataegus monogyna	E_2	37^{+-1}	11^{+-1}	20^{r}	12^{+}	4^{+-2}	33^{+}
	Glechoma hederacea s. l.		26^{+-1}	14^{+-1}	60^{1-2}	12^{r-+}	1^{1}	-
	Primula elatior		21^{+-1}	54^{+-3}	80^{2}	72^{r-1}	4^{+-1}	-
	Salvia glutinosa		21^{+-1}	14^{+-2}	60^{1}	56^{+-2}	3^{1-3}	-
	Lysimachia nummularia		21^{+}	11^{+}	60^{1}	16^{r-+}	1^{+}	-
	Veronica chamaedrys		16^{+}	4^{+}	80^{1-2}	28^{r-+}	1^{+}	-
cf	*Laserpitium latifolium*		5^{+}	11^{+-2}	60^{1-2}	8^{r-1}	2^{+}	33^{+-1}
	Geum urbanum		58^{+-2}	46^{+-1}	-	52^{r-+}	2^{+-1}	16^{+}
	Urtica dioica		42^{+-2}	54^{+-2}	-	32^{+-1}	1^{+}	-
	Dactylis glomerata		42^{+-1}	18^{+}	-	12^{r-+}	3^{+-1}	-
	Anthriscus sylvestris		5^{+}	14^{+}	-	24^{r-+}	2^{+-1}	-
	\$*Campanula persicifolia*		5^{2}	4^{2}	-	12^{1}	-	83^{+-1}
	Crataegus laevigata	E_2	53^{+-1}	25^{+-1}	20^{r}	84^{+-2}	-	-
	Athyrium filix-femina		11^{+}	29^{+-2}	60^{1}	8^{r-+}	-	-
	Galium aparine		37^{+-2}	36^{+-2}	-	16^{r-+}	-	-
	Lapsana communis		21^{+}	4^{+}	-	12^{r-+}	-	-
	Rosa dumetorum		5^{2}	14^{3}	-	-	-	33^{+}
	Euonymus verrucosus	E_2	16^{+-1}	-	-	-	-	-
	Fallopia convolvulus		16^{+}	-	-	-	-	-
	Taraxacum officinale		-	4^{+}	40^{1}	40^{r-+}	1^{+}	-
	Picea abies	E_2	-	21^{+-1}	-	40^{r-1}	2^{+}	-
	Solidago virgaurea		-	4^{2}	-	8^{1}	-	66^{+-1}
	Ranunculus acris		-	4^{+}	80^{r-1}	12^{r-+}	-	-
	Chaerophyllum hirsutum		-	4^{+}	60^{1-2}	4^{r}	-	-
	Thalictrum aquilegiifolium		-	7^{+}	40^{r}	4^{r}	-	-
	Geranium phaeum		-	7^{+}	-	20^{r-3}	-	-
	Vaccinium myrtillus		-	11^{+-1}	20^{r}	-	-	-
	Equisetum sylvaticum		-	18^{+-1}	-	-	-	-
	Campanula rapunculoides		-	-	80^{1-2}	68^{+-1}	1^{+}	-
	Hypericum maculatum		-	-	80^{1}	8^{r}	1^{+}	-
cf	*Pimpinella major*		-	-	60^{1}	20^{r-2}	-	-
	Leontodon hispidus		-	-	60^{1-2}	4^{+}	-	-
	Epipactis helleborine agg.		-	-	40^{r}	28^{r-+}	-	-
	Hieracium lachenalii[1]		-	-	80^{1-2}	12^{+}	-	-
	Carlina acaulis		-	-	100^{r-1}	-	-	-
	Alchemilla monticola		-	-	80^{1-2}	-	-	-
	Danthonia decumbens		-	-	60^{2}	-	-	-
	Anemone nemorosa		-	-	60^{1-2}	-	-	-
	#*Carex echinata*		-	-	60^{1-2}	-	-	-
	Salix silesiaca	E_2	-	-	60^{1-2}	-	-	-
	Hieracium fuscocinereum[2]		-	-	60^{1-2}	-	-	-
	Agrostis capillaris		-	-	60^{1}	-	-	-
	Potentilla erecta		-	-	60^{1}	-	-	-
cf	*Valeriana tripteris*		-	-	60^{r-1}	-	-	-
	Luzula pilosa		-	-	40^{1}	-	-	-
cf	*Rubus saxatilis*		-	-	-	20^{r-+}	-	-

	Number of relevés		19	28	4	25	4	6
	Picea abies	E_3	-	-	-	12[1]	-	-
	Epipactis atrorubens		-	-	-	-	2^{+}	-
	Vicia cracca		-	-	-	-	-	$66^{+\text{-}1}$
be	*Berberis vulgaris*	E_2	-	-	-	-	-	$50^{+\text{-}1}$
	Chaerophyllum aureum		-	-	-	-	-	$50^{1\text{-}2}$
	Hepatica nobilis		-	-	-	-	-	$50^{+\text{-}2}$
	Festuca rubra		-	-	-	-	-	$33^{+\text{-}1}$
	Lilium bulbiferum		-	-	-	-	-	$33^{r\text{-}+}$
	Phegopteris connectilis		-	-	-	-	-	33^{+}
	\$*Hypericum montanum*		-	-	-	-	-	16^{+}
	Rubus ulmifolius Schott		-	-	-	-	-	16^{+}
	Number of accesoric taxa		25	31	26	43	9	6

Sources:
1: Jurko 1964, Tab. 4 (*Pruno-Coryletum*), 17 r.; Tab. 5 (*Lonicero nigrae-Coryletum*), r. 25, 29.
2: Jurko 1964, Tab. 5 (*Lonicero nigrae-Coryletum*), r. 1–24, 26–28, 30.
3: Kulczyński 1928: 134–136, Tab. 33 (*Coryletum avellanae*), 4 r.
4: Kliment & Jarolímek, Tab. 1 (*Prenantho purpurei-Coryletum*), 25 r.
5: Kontriš et al. 2002, Tab. 1, r. 2, 5, 7, 8 (*Pruno-Coryletum*).
6: Kielhauser 1954, Tab. 2, r. 4–9 (*Coryleto-Populetum*, typische Variante).

Explanations:
+ (before the species name) = differential taxa of *Lonicero nigrae-Coryletum* (against *Pruno-Coryletum*) sensu Jurko (1964: 54)
# (before the species name) = diagnostic (characteristic and differential) taxa of *Coryletum avellanae* sensu Kulczyński (1928: 134)
$ (before the species name) = characteristic taxa of *Coryleto-Populetum* sensu Kielhauser (1954: 144)
[1] incl. *H. woloszczaki* Kulcz. (column 3)
[2] *H. fuscocinereum* Norrl. (Kulczyński ut *H. sagittatum*): wrong determination; probably a taxon from the group of *H. murorum* (Szeląg in litt.)