

PHYTOSOCIOLOGICAL ANALYSIS OF RIVERINE FORESTS IN THE VIPAVA AND REKA VALLEYS (SOUTHWESTERN SLOVENIA)

FITOCENOLOŠKA ANALIZA OBREŽNIH GOZDOV V VIPAVSKI DOLINI IN DOLINI REKE (JUGOZAHODNA SLOVENIJA)

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ABSTRACT

Phytosociological analysis of riverine forests in the Vipava and Reka Valleys (southwestern Slovenia)

Applying the standard Central-European method we studied the phytosociology of riverine forests along the rivers Vipava, Lijak, Branica, Raša and Reka with its tributaries in southwestern Slovenia and compared them to similar riverine forests along some other Slovenian rivers (Soča, Sava Bohinjka, Krka, Mirna, Sava, Drava, Mura, Rašica, Dragonja), and with similar communities in Austria and northeastern Italy. Based on this comparison we described the following syntaxa: *Lamio orvalae-Salicetum albae* ass. nov., with two new subassociations: *-caricetosum pendulae* and *-ranunculetosum lanuginosae*, *Lamio orvalae-Alnetum glutinosae* ass. nov. *Ornithogalo pyrenaici-Carpinetum betuli lamietosum orvalae* subass. nov. and *Pseudostellario-Carpinetum betuli leucojetosum aestivi* subass. nov.

Key words: phytosociology, synsystematics, *Salicion albae*, *Alnion incanae*, *Fraxino pannoniciae-Carpinion betuli*, *Erythronio-Carpinion*, Natura 2000, Vipava Valley, Slovenia

IZVLEČEK

Fitocenološka analiza obrežnih gozdov v Vipavski dolini in dolini Reke (jugozagahodna Slovenija)

Po standardni srednjeevropski metodi smo fitocenološko raziskali obrežne gozdove ob rekah Vipavi, Lijaku, Branici, Raši in Reki s pritoki v jugozahodni Sloveniji in jih primerjali s podobnimi logi vzdolž nekaterih drugih slovenskih rek (Soče, Save Bohinjke, Krke, Mirne, Save, Rašice, Drave, Mure in Dragonje) in s podobnimi združabmi v Avstriji in severovzhodni Italiji. Na podlagi te primerjave smo opisali naslednje sintaksone: *Lamio orvalae-Salicetum albae* ass. nov., z dvema novima subasociacijama: *-caricetosum pendulae* in *-ranunculetosum lanuginosae*, *Lamio orvalae-Alnetum glutinosae* ass. nov. *Ornithogalo pyrenaici-Carpinetum betuli lamietosum orvalae* subass. nov. in *Pseudostellario-Carpinetum betuli leucojetosum aestivi* subass. nov.

Ključne besede: fitocenologija, sinsistematička, *Salicion albae*, *Alnion incanae*, *Fraxino pannoniciae-Carpinion betuli*, *Erythronio-Carpinion*, Natura 2000, Vipavska dolina, Slovenija

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1 INTRODUCTION

The Vipava Valley, together with the appertaining neighbouring Raša and Branica valleys is a part of the sub-Mediterranean phytogeographical region of Slovenia with predominantly agricultural land that surrounds the settlements. The forest cover is slightly more extensive in the valleys of the Branica and Raša. These two rivers have more or less maintained their river course, but the Raša is dry for most part of the year. The Vipava River and some of its tributaries from under the Trnovski Gozd plateau (such as the Lijak, Hubelj) are regulated and riparian forests are preserved only in traces, most of all in the section between the villages of Ustje and Brje, along the stream Jovšček and along the Lijak between Ajševica and Vogrsko. On

several locations they have been replaced by poplar plantations. In comparison with the Vipava River the Reka River's course is still very natural in the upper and middle sections, where despite the cultural landscape with predominantly agricultural land relatively large areas of riverine forests have been preserved along its banks, especially along the tributaries such as the Kobljak and Mareški potok creeks. The riparian stands in this valley were inventoried in the section between Trpčane and Ribnica. As riverine forests belong among the habitat types of Community interest that require conservation-based management it makes sense that its current situation and vegetation image be inventoried and described.

2 METHODS

The vegetation of riverine forests in the Vipava and Reka Valleys was researched applying the Central-Eu-

ropean method (BRAUN-BLANQUET 1964). A total of 62 relevés were made in the Vipava Valley and 25 relevés

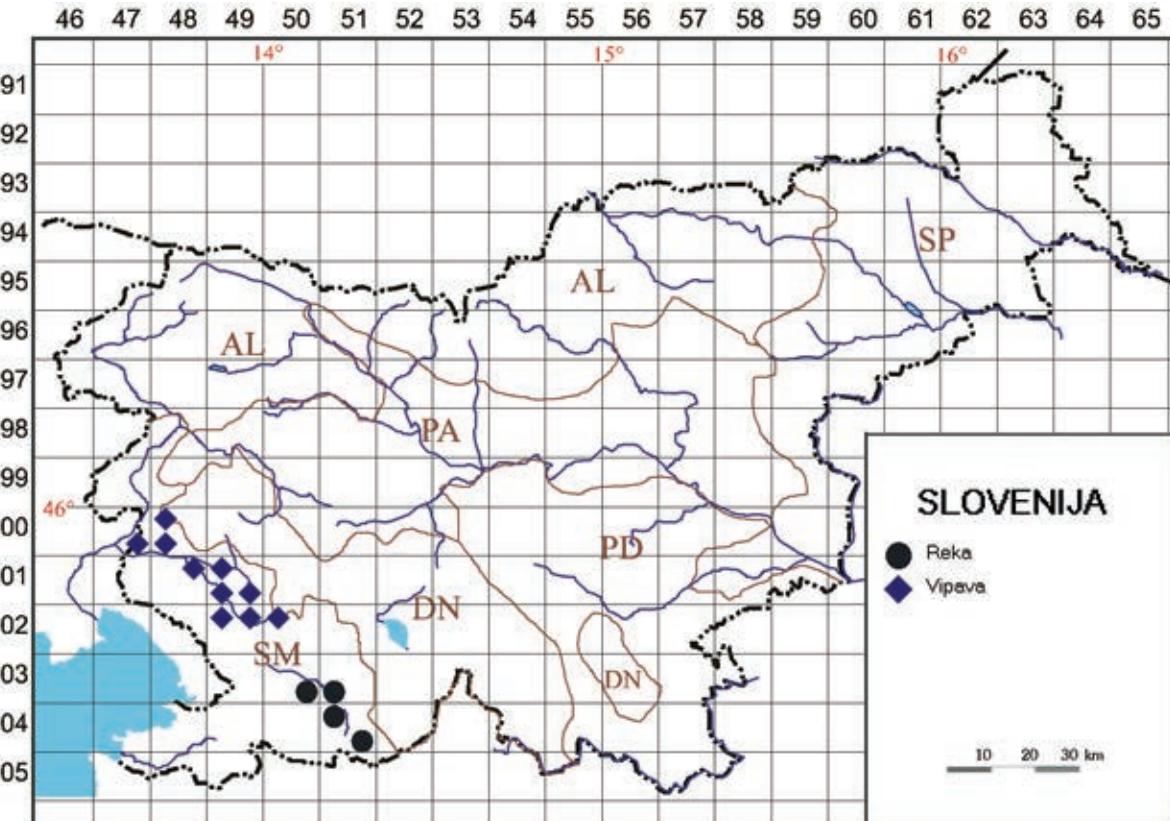


Figure 1: Approximate localities of researched stands in southwestern Slovenia
Slika 1: Približna nahajališča raziskovanih sestojev v jugozahodni Sloveniji

in the Reka Valley (Figure 1). All these relevés were entered into the FloVegSi database (T. SELIŠKAR, VREŠ & A. SELIŠKAR 2003). Combined cover-abundance values were transformed into ordinal values (van der MAAREL 1979). Numerical comparisons were made with the software package SYN-TAX (PODANI 2001). The relevés were compared using the “(Unweighted) average linkage” – UPGMA method. Wishart’s similarity ratio was applied in all comparisons. These comparisons formed the basis for six analytic tables. The established syntaxa were compared to similar, already described communities of white willow, black alder and common oak riverine and swamp forests in Slovenia and northern Italy. We made three synoptic tables, one of them (Appendix 1) is available only on the web page. These synthetic tables provided the basis for the description of several new syntaxa. The nomenclature source for the names of vascular plants is the Mala flora Slovenije (MARTINČIČ & al. 2007), except for the taxon *Helleborus odorus* Waldst. et Kit. subsp. *istriacus* Schiffner. MARTINČIČ (2003, 2011) is the nomenclature source for the names of mosses. The nomenclature sources for the names of syntaxa are THEURILLAT (2004) and ŠILC & ČARNI (2012), except for the name of the class *Querco-Fagetea* Braun-Blanquet et Vlieger in Vlieger 1937. The data on the parent material follow BUSER (2009). The source for the nomenclature of soil types is URBANČIČ et al. (2005).

2.1 Ecological description of the study area

The predominant parent material in both research areas is flysch. Consequently, the alluvium is mainly composed of marlstone, claystone and sandstone boulders, except for a few sites (such as along the Raša) with

predominantly limestone boulders. The predominant soil type on gravel bars is undeveloped fluvisol that transitions to eutric brown soil on slightly elevated terraces. The marshy plains that are slightly removed from the main watercourses have predominantly pseudogley and gley soils. The climate type is designated as the sub-Mediterranean climate in the hinterlands (OGRIN 1998). The average annual temperature in the Vipava Valley is 10 – 12 °C and slightly lower in the Reka Valley, where it reaches 8 – 10 °C (CEGNAR 1998). The average annual precipitation in the Vipava Valley is 1500 to 1600 mm and slightly lower in the Branica and Raša valleys, where it totals 1400 to 1500 mm. The average annual precipitation in the studied area of the Reka Valley is very similar (from 1400 to 1600 mm). In recent years, climatologists have confirmed a rise in the average annual temperature for the Vipava Valley as well as a slightly different annual distribution of precipitation (less in the winter and spring, more in the autumn) – KAJFEŽ BOGATAJ (2014: 52). Both study areas are distinguished for periodical downpour and periods of heavy rain, which causes floods already in the middle course of the Reka to the southeast of Ilirska Bistrica and in the lower course of the Vipava River. The bottom of the Vipava Valley is still in the belt of common hornbeam and oaks forests classified into the association *Ornithogalo pyrenaici-Carpinetum*, whereas beech stands (*Seslerio autumnalis-Fagetum*, *Ornithogalo-Fagetum*) – DAKSKOBLER, SELIŠKAR & VREŠ (2014) that overgrow shady slopes extend all the way down to the valley. The potentially natural vegetation of the upper and middle part of the Reka Valley is mainly beech forest (*Seslerio autumnalis-Fagetum*, *Castaneo-Fagetum sylvaticae*, *Ornithogalo-Fagetum*), whereas the real vegetation is dominated by sessile oak (*Melampyro vulgati-Quercetum petraeae*).

3 RESULTS AND DISCUSSION

3.1 Red willow community

In Table 1 we published one relevé that represents the most initial form of scrub-forest vegetation on the gravel bars along the Vipava River and is temporarily classified into the provisional association *Lamio orvalae-Salicetum purpureae* nom. prov. In the past there were probably more similar stands in the Vipava Valley. The extensive and planned regulation of the Vipava riverbed and its tributaries considerably reduced the possibility of the occurrence of gravel bars and pioneer willow stands on them. Upon more thorough exami-

nations along these and other rivers in the sub-Mediterranean part of Slovenia new stands of willow scrubs may be found that will supplement our knowledge of this pioneer community.

3.2 White willow communities

We made 24 relevés of riverine stands in both areas, with predominant white willow or black poplar in the tree layer; most of them along the Vipava, in the middle course of the river. In order to obtain an adequate

syntaxonomic classification we compared them with the other relevés of white willow communities that we had made along the Soča River (see also DAKSKOBLER, ŠILC & ČUŠIN 2004), along the Sava Bohinjka (DAKSKO-

BLER & ROZMAN 2013) and along the Sava river in the Sava Valley (VREŠ et al. 2010). The relevés formed two large groups (Figure 2) and we correspondingly arranged them into two analytic tables (Tables 2 and 3).

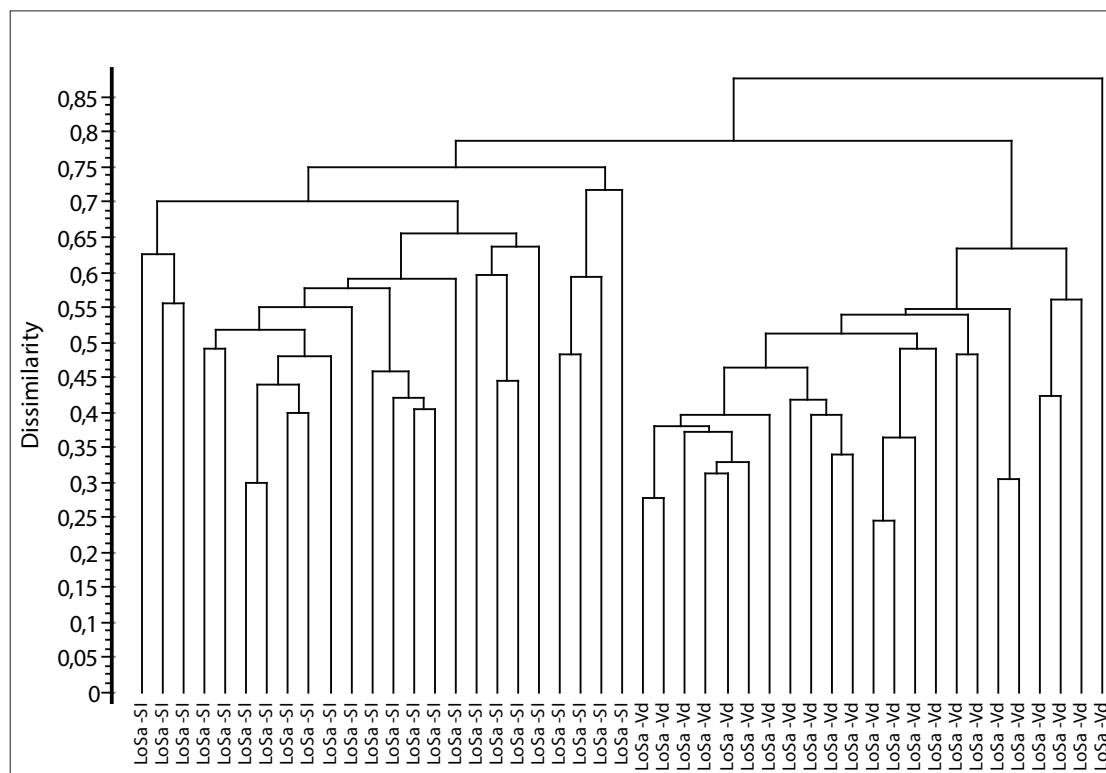


Figure 2: Dendrogram of stands with dominating *Salix alba* in the Vipava Valley (LoSA-Vd), in the Soča Valley and in other parts of Slovenia (LoSa-SI), UPGMA, similarity ratio

Slika 2: Dendrogram sestojev s prevladajočo belo vrbo v Vipavski dolini (LoSA-Vd), v Posočju in drugih delih Slovenije (LoSa-SI), UPGMA, similarity ratio

For an adequate syntaxonomic classification we created a synthetic table (Table 4) with the following syntaxa:
1 LoSa-Si *Lamio orvalae-Salicetum albae ranunculetosum lanuginosae*, Slovenia, this article, Table 3;
2 LoSa-Vd *Lamio orvalae-Salicetum albae caricetosum pendulae*, Slovenia, Vipava Valley, this article, Table 2;
3 Sa-Drava *Salicetum albae*, Slovenia, Drava Valley (Podravje), JAVORNIK (2013, Appendix A, Phytosociological table, relevés 1–8);
4 Sa-Mura, *Salicetum albae* Slovenia, Mura Valley, ČARNI et al. (2008, Synoptic table of forest communities, column 2, compare also P. KOŠIR et al. 2013, Table 1, relevés 1–30);
5 Sa-Krka, *Salicetum albae*, Slovenia, Dolenjska, ŠILC (2003, Table 4);
6 Sap-A *Salicetum albae phalaridetosum*, Austria, KARNER (2007, Table 2, column 3);
7 Sac-A *Salicetum albae cornetosum*, Austria, KARNER (2007, Table 2, column 4);
8 *Amorpha fruticosae-Salicetum albae* var. *Populus nigra*, N-Italy, POLDINI, VIDALI & GANIS, (2011, Table 3, column 9);
9 *Amorpha fruticosae-Salicetum albae* var. *Bidens frondosa*, N-Italy, POLDINI, VIDALI & GANIS, (2011, Table 3, column 11);
10 *Amorpha fruticosae-Salicetum albae* var. *Humulus lupulus*, N-Italy, POLDINI, VIDALI & GANIS, (2011, Table 3, column 10).

For now, our synthetic table does not include the pioneer white willow community (*Salicetum albae s. lat.*) along the Sotla that was described by CIMPERSK (2010, Table 1). In terms of its species composition this community clearly differs from the studied white wil-

low communities in the Vipava and the Reka Valleys and demonstrates the greatest similarity with the white willow community along the Krka and the Mirna.

The floristic composition of the selected syntaxa was compared with hierarchical classification (Figure 3).

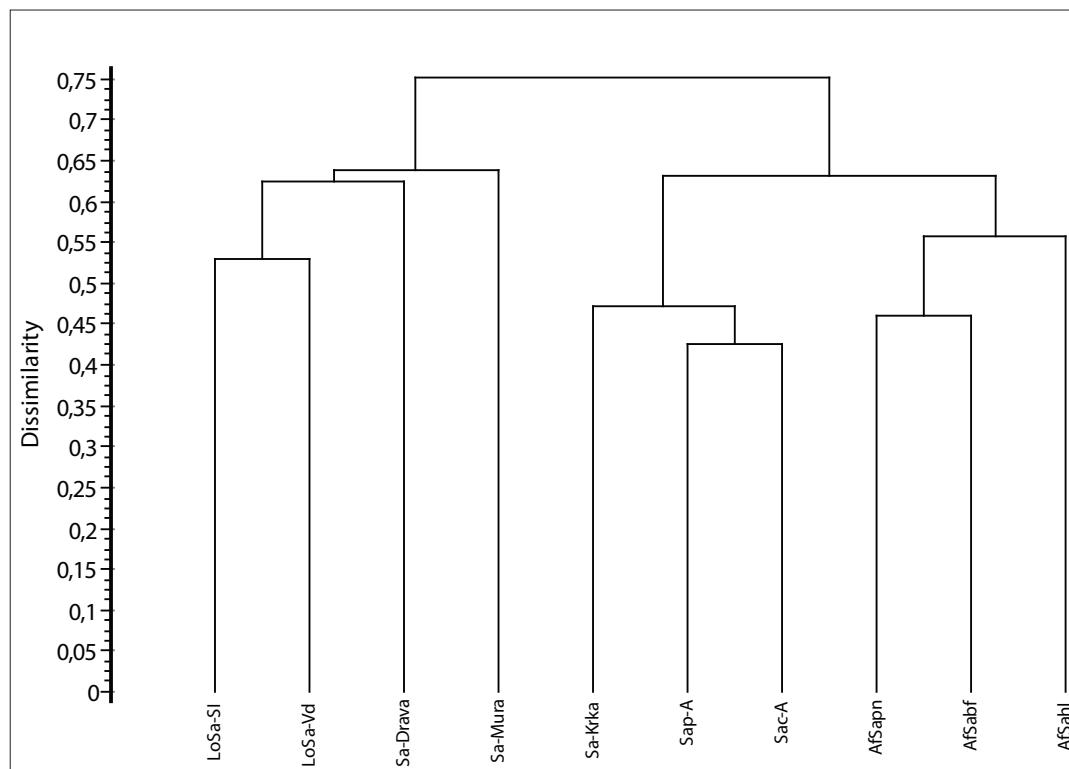


Figure 3: Dendrogram of syntaxa of the macroassociation *Salicetum albae s. lat.* from Slovenia, Austria and northern Italy, UPGMA, similarity ratio

Slika 3: Dendrogram sintaksonov makroasociacije *Salicetum albae s. lat.* iz Slovenije, Avstrije in severne Italije, UPGMA, similarity ratio

The compared syntaxa formed three groups. The first comprises the white willow communities from the Vipava, Reka, Soča and Sava River basins and the white willow communities along the Drava and the Mura. The second group comprises a white willow community along the Krka and Mirna in the Dolenjska region and white willow communities from Austria. The third group comprises white willow communities from northern Italy. Some differences between the compared syntaxa were demonstrated also with the analysis by groups of diagnostic species (Table 5). The white willow communities from the first group are mainly found on deposits of fast-flowing rivers, on gravel and sand. In some places the deposits are slightly elevated from the river surface. The soil is undeveloped, fluvi-

sol, usually flooded several times a year, but nevertheless occasionally very dry. This occasional drying out of sites is frequently the result of human activity, especially regulation of river banks and gravel excavation. The studied communities most significantly differ from real lowland white willow communities, where the soil is moist or even wet for most of the year, by a substantially higher proportion of species from the alliance *Tilio-Acerion*, order *Fagetealia sylvaticae* and class *Querco-Fagetea* and by a significantly smaller proportion of the species from the class *Phragmiti-Magnocaricetea*. Their species composition demonstrates successional development toward communities from the alliance *Alnion incanae*, which was established also by POLDINI, VIDALI & GANIS (2011). In Austria, such

stands are classified into the subassociation *Salicetum albae cornetosum*, but their floristic composition is clearly different from the floristic composition of the studied communities (Figure 3). White willow stands in Slovenia, especially its western and southwestern part, are well differentiated also by some species of alliances *Erythronio-Carpinion* and *Aremonio-Fagion*, which is partly attributed to the forest vegetation that dominates in their vicinity.

Based on these findings we classify the studied white willow communities along the Vipava and Reka into the new association *Lamio orvalae-Salicetum albae* ass. nov. Its nomenclature type, *holotypus*, is relevé 20 in Table 2. The diagnostic species of the new association are *Salix alba*, *Lamium orvala*, *Ranunculus ficaria*, *Galanthus nivalis*, *Lunaria rediviva* and *Arum maculatum*, i.e. mostly the species that indicate the transitional status of these stands toward the communities from the alliance *Alnion incanae*. Compared to the white willow community along the Reka and the Soča the upper tree layer in the riparian white willow stands along the Vipava River is frequently dominated by black poplar (*Populus nigra*), while box elder (*Acer negundo*) is spreading rapidly in both the lower tree layer and the shrub layer. The herb layer is best characterised by *Carex pendula*, *Ruscus aculeatus* and *Ornithogalum pyrenaicum*, which are also the differential species of the new subassociation *Lamio orvalae-Salicetum albae caricetosum pendulae*. Its nomenclature type, *holotypus*, is relevé 20 in Table 2. Said species characterise this community both ecologically (alluvium on flysch with dominating marlstone, claystone and sandstone boulders) and phytogeographically (sub-Mediterranean region with warm climate). The relevés of white willow communities from the Reka Valley grouped together with other relevés from the Upper Soča Valley and some other parts of Slovenia (Table 3). They are classified into the new subassociation *Lamio orvalae-Salicetum albae ranunculetosum lanuginosae*. Its differential species are *Ranunculus lanuginosus*, *Cardamine amara*, *Impatiens noli-tangere*, *Fraxinus excelsior* and *Leucojum verum*. The listed species indicate better developed, moist fluvisols, a transition to the communities from the alliance *Alnion incanae* and, compared to the previously described subassociation, a colder climate. Also different is the com-

negundo) is spreading rapidly in both the lower tree layer and the shrub layer. The herb layer is best characterised by *Carex pendula*, *Ruscus aculeatus* and *Ornithogalum pyrenaicum*, which are also the differential species of the new subassociation *Lamio orvalae-Salicetum albae caricetosum pendulae*. Its nomenclature type, *holotypus*, is relevé 20 in Table 2. Said species characterise this community both ecologically (alluvium on flysch with dominating marlstone, claystone and sandstone boulders) and phytogeographically (sub-Mediterranean region with warm climate). The relevés of white willow communities from the Reka Valley grouped together with other relevés from the Upper Soča Valley and some other parts of Slovenia (Table 3). They are classified into the new subassociation *Lamio orvalae-Salicetum albae ranunculetosum lanuginosae*. Its differential species are *Ranunculus lanuginosus*, *Cardamine amara*, *Impatiens noli-tangere*, *Fraxinus excelsior* and *Leucojum verum*. The listed species indicate better developed, moist fluvisols, a transition to the communities from the alliance *Alnion incanae* and, compared to the previously described subassociation, a colder climate. Also different is the com-

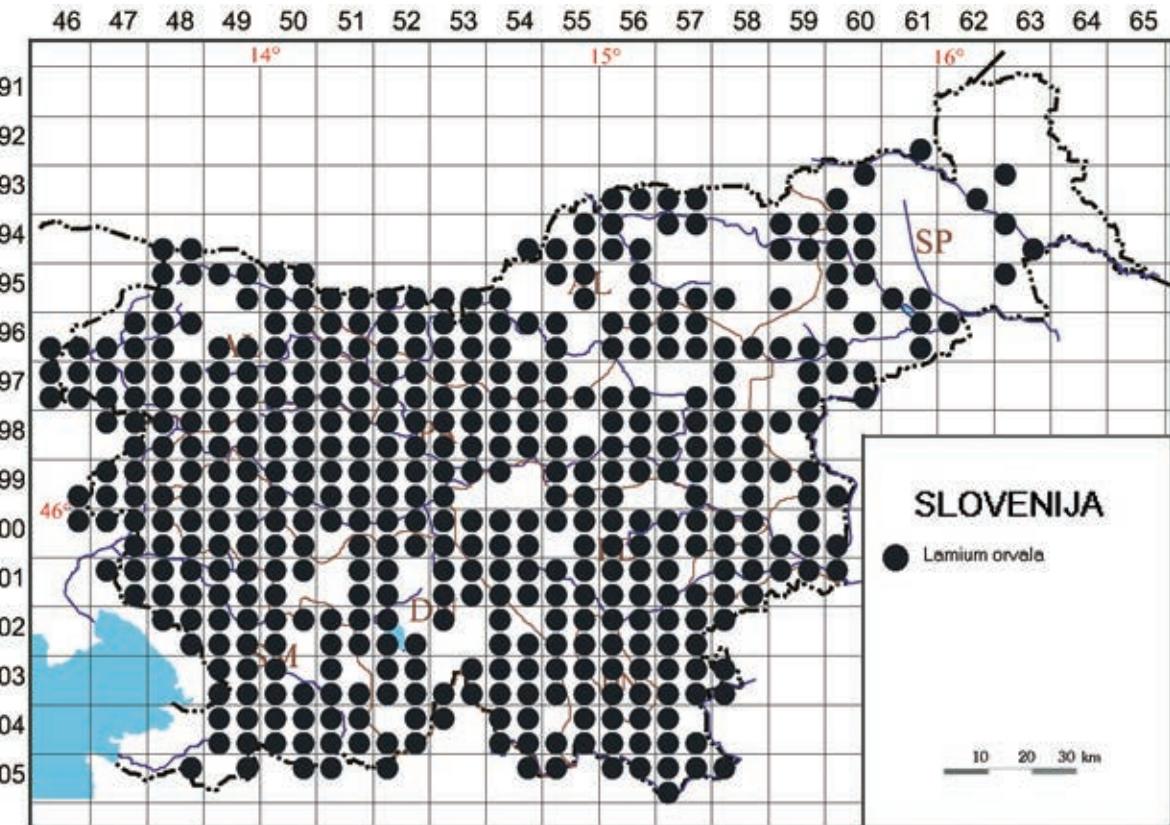


Figure 4: Distribution of *Lamium orvala* in Slovenia
Slika 4. Razširjenost vrste *Lamium orvala* v Sloveniji

position of alluvium, which is usually dominated by calcareous boulders and sand.

The nomenclature type, *holotypus*, of the subassociation *Lamio orvalae-Salicetum albae ranunculetosum lanuginosae* is reléve No. 18 in Table 3. Within this sub-association we distinguish the variant with *Leucojum vernum* (*Lamio orvale-Salicetum albae ranunculetosum lanuginosae* var. *Leucojum vernum*), which comprises the relevés originally described as the syntaxon *Salicetum albae* Issler 1926 *leucojetosum verni* Šilc, Čušin & Dakskobler in Dakskobler, Šilc et Čušin 2004 (DAKSKOBLER, ŠILC & ČUŠIN, 2004, Table 1, relevés 3–15). These relevés do not belong into the association *Salicetum albae* s. str., as was ascertained also by POLDINI, VIDALI & GANIS (2011: 144) in their comparison.

According to our comparisons the association *Lamio orvalae-Salicetum albae* could comprise also the white willow communities along the Mura (ČARNI et al. 2008; KOŠIR et al. 2013) and Drava Rivers (JAVORNIK 2013), even though some of the diagnostic species of this association were not recorded in these stands, in particular not *Lamium orvala* which grows also along the Drava and Mura (Figure 4).

3.3 *Acer negundo* community in the Vipava Valley

Box elder (also boxelder maple) is a Northern American species that was introduced to Europe in 1688 as a park tree. In its native land it grows in flood plains and riverine forests, on disturbed sites with ample water supply. It is a heliophilous and pioneer species and in its native range it often overgrows abandoned farmlands (BRUS 2005: 275). In Slovenia it is grown as an ornamental tree. It spreads subsppontaneously to riverine and floodplain forests, especially on sites similar to those in its native range. ČARNI et al. (2008) and P. KOŠIR et al. (2013) recorded it in the Mura Valley in the stands of the syntaxa *Salicetum albae*, *Fraxino-Ulmetum effusae allietosum ursini* and *Fraxino-Ulmetum effusae quercketosum roboris*. We recorded it in the Soča Valley, in the stands of associations *Salicetum albae* s. lat., *Lamio orvalae-Alnetum incanae* and *Lamio orvalae-Salicetum eleagni* (DAKSKOBLER, ŠILC & ČUŠIN 2004, DAKSKOBLER & ROZMAN 2013). In the lowlands it already grows subsppontaneously in the major part of Slovenia, especially along rivers, including the Sava, the Krka and the Drava (Figure 5).

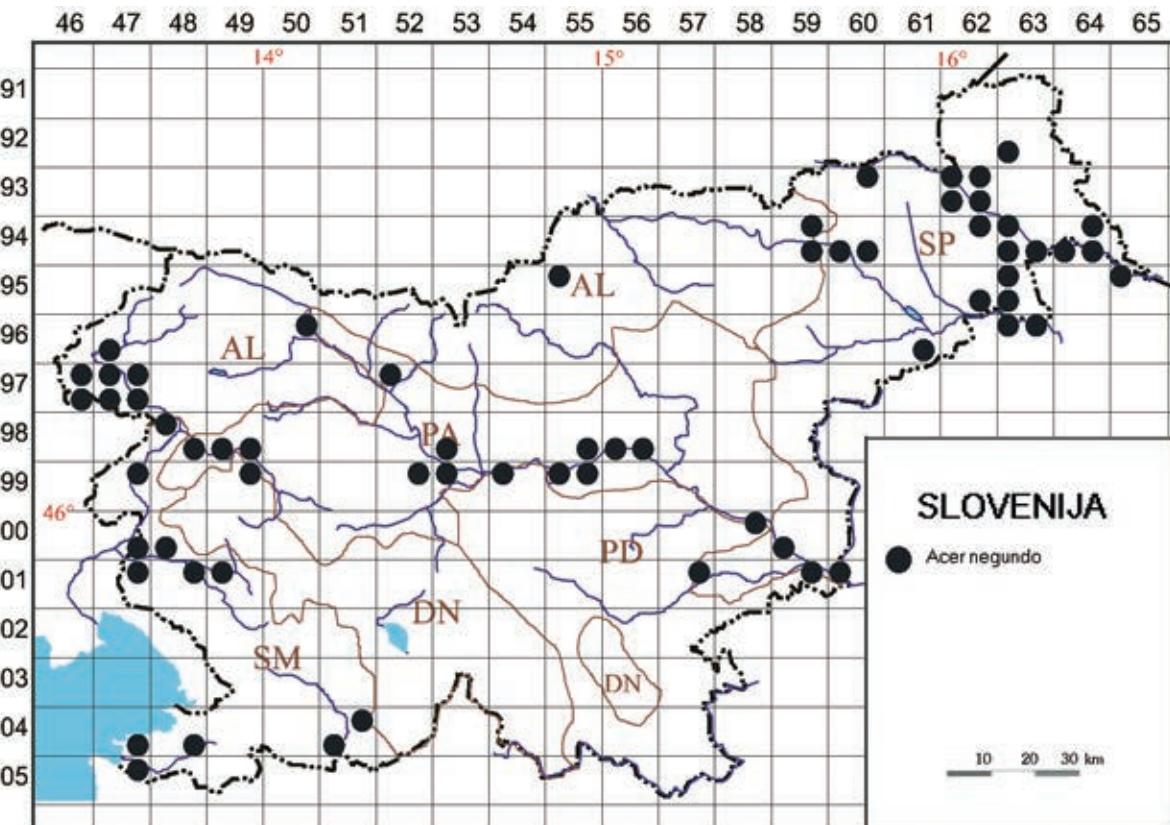


Figure 5: Distribution of *Acer negundo* in Slovenia
Slika 5: Razširjenost vrste *Acer negundo* v Sloveniji

AESCHIMANN et al. (2004: 1044) classify *Acer negundo* as a character species of the alliance *Alnion incanae*. In this article we classify it as a diagnostic species of the alliance *Salicion albae*, as it occurs the most abundantly in the white willow community in the Vipava Valley. We also recorded two riverine stands on abandoned farmland on the right bank of the Lijak between Ajševica and Vogrsko in the lower Vipava Valley, where it is the dominant species of the tree layer (Table 6). For the time being, we classify these two relevés into the provisional new association *Ornithogalo pyrenaici-Aceretum negundi* nom. prov. Its diagnostic species are *Acer negundo*, *Ruscus aculeatus* and *Ornithogalum pyrenaicum*. These stands occurred on contact sites between the communities of white willow (*Lamio orvalae-Salicetum albae*), black alder and common oak (*Lamio orvalae-Alnetum glutinosae*, *Pseudostellario-Carpinetum betuli*) and between the common hornbeam and common oak communities (*Ornithogalo pyrenaici-Carpinetum betuli caricetosum pilosae* var. *Quercus robur*). The provisional association *Ornithogalo-Aceretum negundi* is temporarily classified into the alliance *Alnion incanae*.

3.4 Communities of black alder, common oak and hornbeam

Table 7 comprises 39 relevés of riverine forests in the Vipava Valley that grouped separately from the white willow community that was described in the previous chapters. In order to obtain an adequate syntaxonomical classification of these relevés we made a synthetic table (Appendix 1, available in electronic form) with the following syntaxa:

OrClo *Ornithogalo pyrenaici-Carpinetum betuli lamietosum orvalae*, the Vipava Valley, this article, Table 7, relevés 20–39;

LoAg-Vd *Lamio orvalae-Alnetum glutinosae*, the Vipava Valley, this article, Table 7, relevés 14–19;

LoAgsb-R *Lamio orvalae-Alnetum glutinosae* var. *Scilla bifolia*, the Reka Valley, this article, Table 8, relevés 6–9;

LoAgcb-R *Lamio orvalae-Alnetum glutinosae* var. *Cardamine bulbifera*, the Reka Valley, this article, Table 8, relevés 10–19;

LoAgsb1-R *Lamio orvalae-Alnetum glutinosae* var. *Scilla bifolia*, the Reka Valley, this article, Table 8, relevés 1–5;

LoAg1-Vd *Lamio orvalae-Alnetum glutinosae*, the Vipava Valley, this article, Table 7, relevés 10–13;

LoAg-ZP *Lamio orvalae-Alnetum glutinosae* s. lat., the Soča and Idrijca Valleys, Dakskobler, (2016, mscr.);

PsCbla-Vd *Pseudostellario-Carpinetum betuli leucojetosum aestivi*, the Vipava Valley, Lijak, this article, Table 7, relevés 1–9;

Fra-Is *Rusco aculeati-Fraxinetum angustifoliae* nom. prov., Istria, Dakskobler & Sadar (2016, mscr.);

CacAg-R *Carici acutae-Alnetum glutinosae* nom. prov., the Reka Valley, Dakskobler (2016, mscr.);

CraA-Md *Carici randalpinae-Alnetum glutinosae* Martinčič 2007 nom. prov., Dolenjska, the Rašica Valley, Dakskobler (2016, mscr.);

CelAggr-A *Carici elongatae-Alnetum glutinosae* var. *Geum rivale*, Dolenjska, the Kočevje region, ACCETTO (1994, Table 3);

SnAg-A *Stellario-Alnetum glutinosae* var. geogr. *Knautia drymeia*, Dolenjska, ACCETTO (1994, Table 4);

ChAg-It *Corno hungaricae-Alnetum glutinosae*, N-Italy, SBURLINO et al. (2011, Table 1);

CelAg-It *Carici elatae-Alnetum glutinosae*, N-Italy, SBURLINO et al. (2011, Table 2);

CelAgla-A *Carici elongatae-Alnetum glutinosae* var. *Leucojum aestivum*, Dolenjska, the Krka Valley, ACCETTO (1994, Table 2);

CelAgcr-A *Carici elongatae-Alnetum glutinosae caricetosum ripariae*, the Mura Valley (Pomurje), ACCETTO (1994, Table 1, relevés 1–6).

These were mutually compared through hierarchical classification, which produced the following dendrogram (Figure 6).

The results show that most of the relevés from the Vipava Valley and the Reka Valley grouped separately from the relevés of associations *Stellario-Alnetum glutinosae*, *Carici elongatae-Alnetum glutinosae*, *Corno hungaricae-Alnetum glutinosae* and *Carici elatae-Alnetum glutinosae*. The exception are the four relevés made along the stream Kobljak and along the Reka River at Topolc in which neither *Carex elongata* nor *Carex elata* occur; instead, some of these relevés comprise *Carex acuta*, *C. rostrata* and *C. riparia*. These stands are not discussed in this article and we will provide some additional relevés before we make an attempt at a relevant syntaxonomical classification.

Most of the studied black alder stands therefore do not belong to an alder carr, but to a group of riverine (riparian) stands. In Slovenia, such black alder stands are mainly classified into the association *Stellario nemorum-Alnetum glutinosae* (CIMPREŠEK 2013). Similar communities are classified into this association also elsewhere in Europe (DOUDA et al. 2016). Our relevés match the sites of this association in terms of ecology, but not in terms of floristic composition. We therefore classified the relevés with predominant black alder that were made in the Reka Valley (Table 8) into the

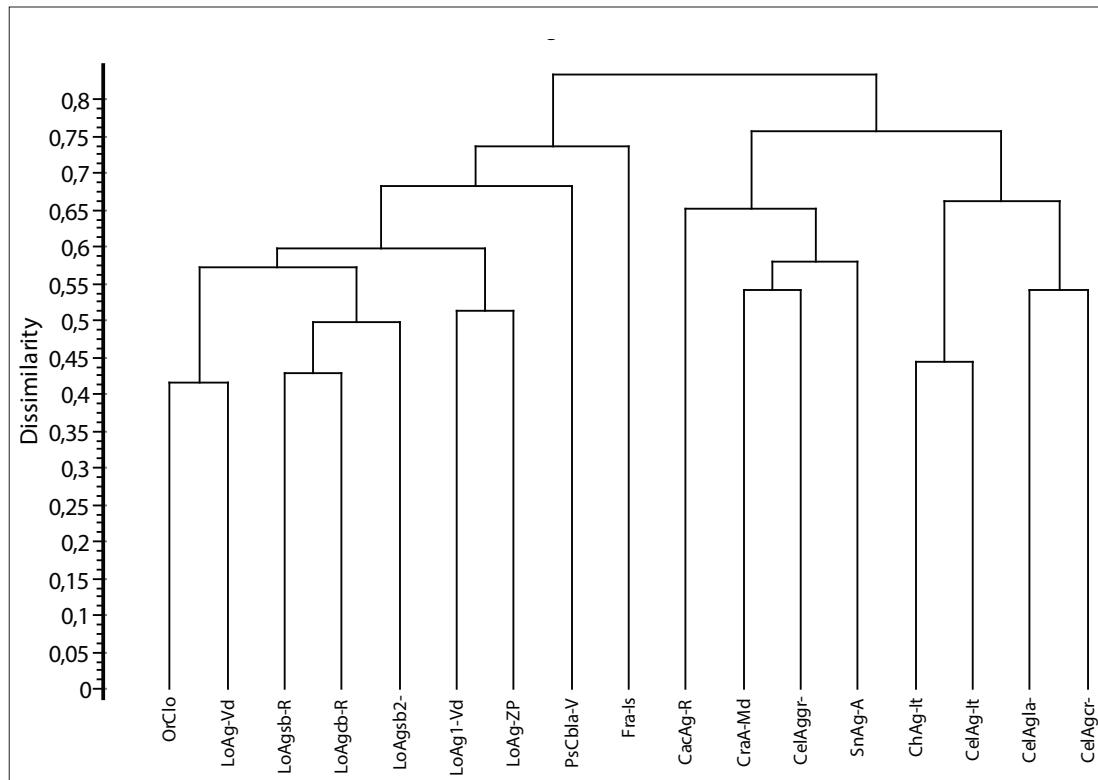


Figure 6: Dendrogram of communities with dominant *Alnus glutinosa*, *Quercus robur* and *Carpinus betulus*, Slovenia, N-Italy, UPGMA, similarity ratio

Slika 6: Dendrogram združb s prevladajočimi vrstami *Alnus glutinosa*, *Quercus robur* in *Carpinus betulus*, Slovenija, severna Italija, UPGMA, similarity ratio

new association *Lamio orvalae-Alnetum glutinosae*. Its diagnostic species are *Alnus glutinosa*, *Lamium orvala*, *Ornithogalum pyrenaicum* and *Galanthus nivalis*. The new association comprises mainly pioneer black alder and European ash stands with individual specimens of white willow, black poplar and, especially in the lower tree layer, white poplar and field maple (*Acer campestre*) on fluvisols or eutric brown soils, primarily along streams, on areas with predominantly mixed parent material (flysch, marlstone, limestone interlayered with marlstone). In the past, such riverine forests that are only occasionally flooded were frequently cut for agricultural land (meadows, orchards). Their appearance today is secondary. They are a long-term pioneer stage that may develop in secondary succession and on automorphic soil into common hornbeam (*Ornithogalo-Carpinetum*) and even beech (*Ornithogalo-Fagetum*) communities. The new association is classified into the alliance *Alnion incanae*. Its nomenclature type, *holotypus*, is relevé 9 in Table 8. In the Reka Valley we currently distinguish two variants, a more hygrophilous

one on fluvisols with *Scilla bifolia* (its differential species is also *Allium ursinum*) and a more pioneer form on predominantly eutric soil, the variant with *Cardamine bulbifera* (its differential species is also *Crocus vernus* subsp. *vernus* = *C. napolitanus*). For now, the association *Lamio orvalae-Alnetum glutinosae* in the Vipava Valley comprises ten relevés (relevés 10–19 in Table 7). We made them at different localities, mainly along lateral streams (Jovšček, Lijak, Pasji rep) and in Panovec, on fluvisols, in places also on pseudogley soils. In addition to the predominant black alder the tree layer sometimes comprises individual specimens of common oak (*Quercus robur*), narrow-leaved ash (*Fraxinus angustifolia*) and European field elm (*Ulmus minor*). *Fraxinus excelsior* and *Carpinus betulus* occur less frequently in these stands than in the stands in the Reka Valley.

Some of the relevés with predominant or frequent black alder in the tree layer (relevés 25–29 in Table 7), especially in the Branica Valley and along the Lijak, grouped with other relevés that are classified into the

association *Ornithogalo-Carpinetum betuli*. MARINČEK, POLDINI & ZUPANČIČ (1983) described this association in the lower Vipava Valley and partly also in the Central Soča Valley and northeastern Italy. Our relevés were made on slightly elevated, but still periodically flooded terraces along the Raša and Branica, a few also along the Vipava and Lijak. The tree layer of the preserved stands is dominated by *Carpinus betulus*, *Alnus glutinosa* and *Acer campestre*. It comprises also individual specimens of *Fraxinus excelsior*, *Acer pseudoplatanus*, *Ulmus glabra* and *U. minor*. Due to coppicing black locust (*Robinia pseudoacacia*) frequently dominates in the tree layer. Its predominance is generally characteristic also in other forms of this association in the Nova Gorica region and the Vipava Valley. Our stands cannot be classified within either subassociation that has been described so far: *-ostryetosum carpinifolia* and *-caricetosum pilosae* (MARINČEK, POLDINI, ZUPANČIČ, ibid.). They are slightly similar to the stands of the syntaxon *Ornithogalo-Carpinetum caricetosum pilosae* var. *Quercus robur* subvar. *Equisetum telmateiae*, except that in our relevés common oak is very rare, just like *Carex pilosa*, which was found in only one relevé, whereas *Equisetum telmateiae* was not recorded at all. Our stands are therefore classified into the new subassociation *Ornithogalo-Carpinetum betuli lamietosum orvalae* subass. nov. It indicates relatively moist sites on terraces along streams and small rivers on the transition between fluvisols (hydromorphic) and automorphic (eutric) soils, where black alder occasionally establishes itself in forest stands as a pioneer species. The new subassociation was named after *Lamium orvala*, which is frequent also in other forms of the association *Ornithogalo-Carpinetum*, but indicates mesophilous riverine sites and a certain similarity and contact with the stands of the association *Lamio orvalae-Alnetum glutinosae*. Phytogeographical differential species is the taxon *Helleborus odorus* subsp. *istriacus* (= *H. multifidus* subsp. *istriacus*) that characterises primarily the stands along the Raša and Branica, which are the northern border of its distribution range. The nomenclature type, *holotypus*, of the subassociation *Ornithogalo-Carpinetum betuli lamietosum orvalae* is relevé 33 in Table 7. Relevés 25–29 can be treated as the syntaxon *Ornithogalo-Carpinetum lamietosum orvalae* var. *Alnus glutinosa*.

In the synthetic comparison (Figure 6) two syntaxa formed separate groups. The first comprises the relevés with predominating *Fraxinus angustifolia* on fluvisols in the Slovenian part of Istria. These are temporarily classified into the association *Rusco aculeati-Fraxinetum angustifoliae* nom. prov. (Dakskobler & Sadar 2016, mscr.). The other, floristically unique syn-

taxon comprises the relevés of mixed stands with predominating *Quercus robur*, *Alnus glutinosa*, *Fraxinus angustifolia*, *Ulmus minor* and *Carpinus betulus* (the latter occurs in particular in the lower tree layer) on pseudogley and gley soils on the right bank of the stream Lijak (Log, Butnica) between Ajševica and Vogrsko. These stands did not group with black alder communities on pseudogley and gley soils (associations *Carici elongatae-Alnetum glutinosae*, *Carici acutae-Alnetum glutinosae* nom. prov., *Carici randalpinae-Alnetum glutinosae* nom. prov.), nor with the stands of the syntaxa *Ornithogalo-Carpinetum betuli lamietosum orvalae* and *Lamio orvalae-Alnetum glutinosae*, even though they are more similar to them in terms of their full floristic composition than to the black alder communities in central, eastern, southwestern and southeastern Slovenia. These stands cannot be classified into the predominating forest community in the hills to the southeast of Nova Gorica, into the association *Ornithogalo-Carpinetum*, nor in its most hygrophilous form *-caricetosum pilosae* var. *Quercus robur* subvar. *Equisetum telmateiae*. In comparison with the latter, *Alnus glutinosa* in the studied stands has considerably higher medium coverage and its differential species are *Fraxinus angustifolia*, *Ulmus minor* and *Leucojum aestivum*. These obvious differences indicate a much more hygrophilous community on hydromorphic soils that cannot be classified into the alliance *Erythronio-Carpinion* whose communities mainly occur on automorphic soils (brown calcareous or eutric brown soils). In order to obtain an adequate syntaxonomic classification we made a synoptic table (Table 9) that comprises the following syntaxa whose tree layer is dominated by similar species as our stands, namely *Quercus robur*, *Alnus glutinosa*, *Fraxinus angustifolia*, *Ulmus minor*, *U. laevis* and *Carpinus betulus*:

PsCbla *Pseudostellario-Carpinetum betuli leucojetosum aestivi*, Lijak, this article, Table 7, relevés 1–9;

PsCb *Pseudostellario-Carpinetum betuli*, Krakovski Gozd, ACCETTO (1973, 1974);

PsQrla *Pseudostellario-Quercetum roboris leucojetosum aestivi*, Southeastern Slovenia, ACCETTO (1995, Table 2);

FUeqr *Fraxino-Ulmetum effusae quercetosum roboris*, the Mura Valley (Pomurje), P. Košir et al. (2013, Table 1, relevés 39–58).

The result of this comparison is the dendrogram in Figure 7.

The comparison showed that in terms of their floristic composition the studied stands along the Lijak are the most similar to the stands of the association *Pseudostellario-Carpinetum betuli* and less to the stands

of the association *Pseudostellario-Quercetum roboris* (into which we could probably include relevé 9 in Table 7) and *Fraxino-Ulmetum effusae quercetosum roboris*. The differences between them are evident also from the analysis by groups of diagnostic species (Table 10). Similarly to the stands of the association *Pseudostellario-Carpinetum betuli* the stands of the studied syntaxon comprise a substantially higher proportion of diagnostic species of the classes *Quero-Fagetea* and *Fagetalia sylvaticae* (together they total more than 45%) than the stands of the syntaxon *Pseudostellario-*

-Quercetum petraeae (less than 20%). The stands of the syntaxon *Pseudostellario-Quercetum roboris* stand out with a high proportion of diagnostic species of the following syntaxonomic units: *Alnion incanae*, *Alno-Quercion roboris*, *Calthion*, *Molinietalia caeruleae* and *Phragmiti-Magnocaricetea*, while the stands of the syntaxon *Fraxino-Ulmetum effusae quercetosum roboris* have a high proportion of syntaxonomic units *Alno-Quercion roboris* and *Galio-Urticetea*. Compared to the stands of the association *Pseudostellario-Carpinetum* in southeastern Slovenia the studied stands com-

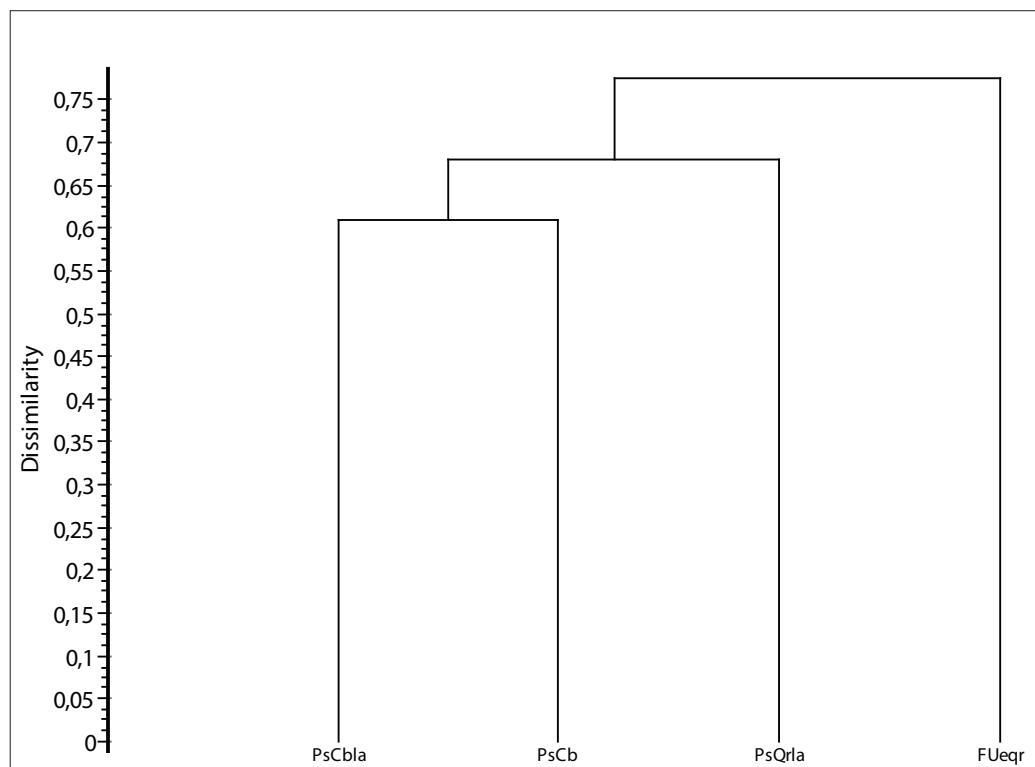


Figure 7: Dendrogram of syntaxa *Pseudostellario-Carpinetum*, *Pseudostellario-Quercetum roboris leucojetosum aestivi* and *Fraxino-Ulmetum effusae quercetosum roboris*, UPGMA, similarity ratio
Slika 7: Dendrogram sintaksonov *Pseudostellario-Carpinetum*, *Pseudostellario-Quercetum roboris leucojetosum aestivi* in *Fraxino-Ulmetum effusae quercetosum roboris*, UPGMA, similarity ratio

prise a distinctly higher proportion of diagnostic species of alliance *Erythronio-Carpinion* and class *Quero-Fagetea* and a distinctly smaller proportion of species of syntaxonomic groups *Fagetalia sylvaticae*, *Vaccinio-Piceetea*, *Molinio-Arrhenatheretea* and *Galio-Urticetea*.

Based on said comparisons it is the most appropriate that the stands along the Lijak be classified into the new subassociation *Pseudostellario-Carpinetum betuli leucojetosum aestivi* subass. nov. Its nomenclature type,

holotypus, is relevé 5 in Table 7. The diagnostic species of the association *Pseudostellario-Carpinetum Quercus robur*, *Carex remota* and *Pseudostellaria europaea* are well represented in our relevés, whereas *Gagea spathacea* and *Pulmonaria dacica* are absent. The differential species of the new subassociation *-leucojetosum aestivi* are *Leucojum aestivum*, *Fraxinus angustifolia*, *Lamium orvala* and *Allium ursinum*, which indicate a very hygrophilous common oak-common hornbeam community whose ecology is very similar also to the stands of

a slightly more hygrophilous association *Pseudostellario-Quercetum roboris*. Riparian stands along the Lijak are classified into the new geographical variant *Pseudostellario-Carpinetum betuli* var. geogr. *Ranunculus aesontinus* var. geogr. nova. The differential species of the geographical variant are *Ranunculus aesontinus* and *Ruscus aculeatus*, which indicate the occurrence of these stands in western Slovenia and in the sub-Mediterranean phytogeographical region. *Ranunculus aesontinus* is endemic to the southwestern Julian Alps

and their foothills (Figure 8); it occurs only in the Soča Valley and in the neighbouring Friuli Venezia Giulia (WRABER 1996: 87, POLDINI 2002: 400) and characterises the studied stands both in terms of phytogeography and ecology as it is a character species of lowland and hill forest communities on moist sites. So far, the stands of the association *Pseudostellario-Carpinetum betuli* have been known mostly in southeastern Slovenia, in the pre-Dinaric and sub-Pannonic phytogeographical region (ACCETTO 2006).

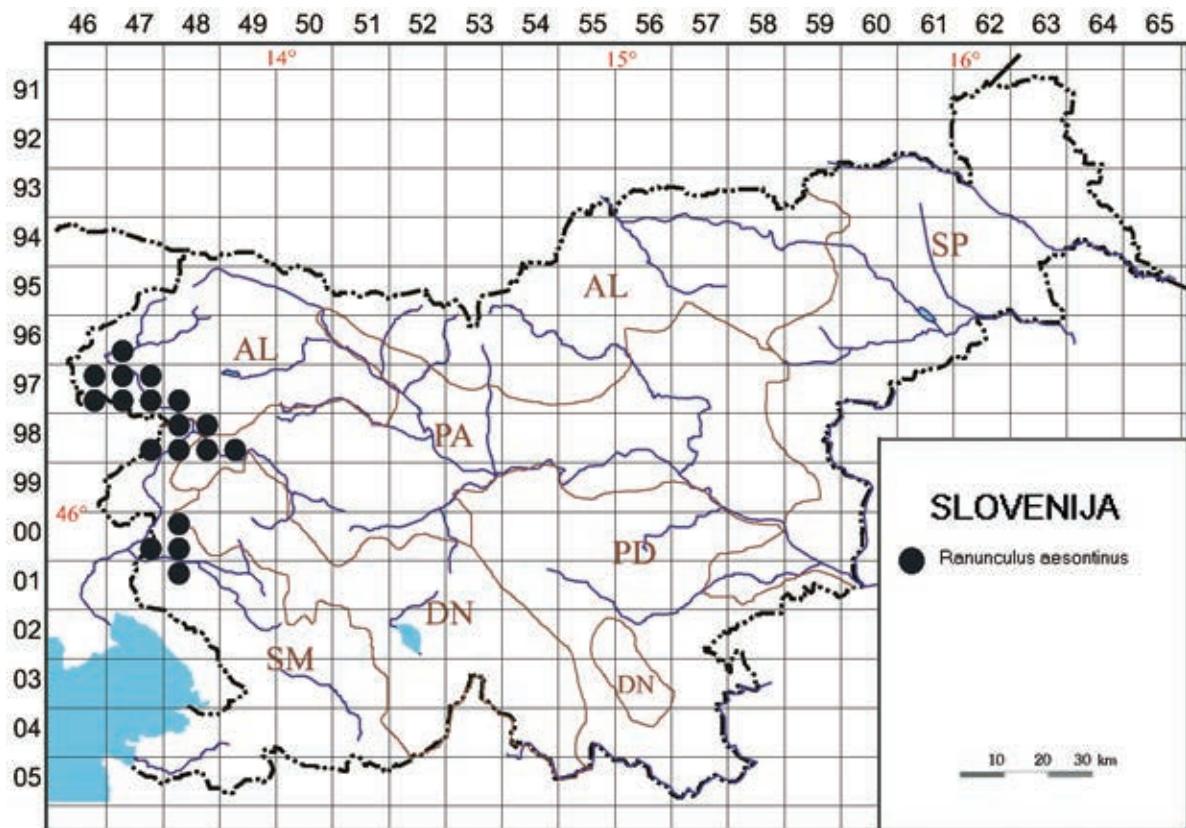


Figure 8: Distribution of *Ranunculus aesontinus* in Slovenia
Slika 8: Razširjenost vrste *Ranunculus aesontinus* v Sloveniji

4 CONCLUSIONS

The synsystematic conspectus of the communities discussed in the article is as follows:

Class: *Salicetea purpureae* Moor 1958

Order: *Salicetalia purpureae* Moor 1958

Alliance: *Salicion eleagno-daphnoidis* (Moor 1958) Grass 1993

Association: *Lamio orvalae-Salicetum purpureae* nom. prov.

Alliance: *Salicion albae* Soó 1951

Associations and subassociations:

Salicetum albae Issler 1926

-*phalaridetosum* Wendelberger-Zelinka 1952

-*cornteosum* Wendelberger-Zelinka 1952

-*leucojetosum verni* Šilc, Čušin & Dakskobler in Dakskobler, Šilc et Čušin 2004

Amorpho fruticosae-Salicetum albae Poldini, Vidali et Ganis 2011

Lamio orvalae-Salicetum albae ass. nov.

-*caricetosum pendulae* subass. nov.

-*ranunculetosum lanuginosae* subass. nov.

Class: *Alnetea glutinosae* Br.-Bl. et Tx. 1943

Order: *Alnetalia glutinosae* R. Tx. 1937

Alliance: *Alnion glutinosae* Malcuit 1929

Associations and subassociations:

Carici elongatae-Alnetum glutinosae Koch ex Tx. 1931

-*caricertosum ripariae* Accetto 1994

Carici randalpiniae-Alnetum glutinosae Martinčič 2007 nom. prov.

Carici elatae-Alnetum glutinosae Franz ex Sburlino, Poldini, Venanzoni et Ghirelli 2011

Corno hungaricae-Alnetum glutinosae Sburlino, Poldini, Venanzoni et Ghirelli 2011

Carici acutae-Alnetum glutinosae nom. prov.

Class: *Querco-Fagetea* Br.-Bl. et Vlieger in Vlieger 1937

Order: *Fagetalia sylvaticae* Walas 1933

Alliance: *Alnion incanae* Pawłowski in Pawłowski et al. 1928

Suballiance: *Ulménion* Oberdorfer 1953

Associations and subassociations:

Fraxino angustifoliae-Ulmetum effusae Slavnić 1952
quercetosum roboris P. Košir, Čarni, Marinšek et Šilc 2013
Pseudostellario europaea-Quercetum roboris Accetto 1974
leucojetosum aestivi Accetto 1995

Suballiance: *Alnenion glutinosae-incanae* Oberdorfer 1953

Associations:

Stellario nemorum-Alnetum glutinosae Lohmeyer 1957

Lamio orvalae-Alnetum glutinosae ass. nov.

Ornithogalo pyrenaici-Aceretum negundi nom. prov.

Alliance: *Fraxino pannonicæ-Carpinion betuli* Accetto 2006

Association and subassociation:

Pseudostellario-Carpinetum betuli Accetto 1974 *leucojetosum aestivi* subass. nov.

var. geogr. *Ranunculus aesontinus* var. geogr. nov.

Alliance: *Erythronio-Carpinion* (Ht. 1938) Marinček in Mucina, Wallnöfer et Grass 1993

Association and subassociation:

Ornithogalo pyrenaici-Carpinetum betuli Marinček, Poldini et Zupančič ex Marinček 1994 *lamietosum orvalae* subass. nov.

If we ignore the floristic composition and consider the appearance in terms of habitat types, the communities from the alliance *Alnion incanae* could be classified into the order *Fraxinetalia* Scamoni et Passarge 1959 and class *Populetea albae* Br.-Bl. 1962 (THEURILLAT 2004, ŠILC & ČARNI 2012). In terms of the vegetation classification that was made based on extensive databases for European floodplain forests and alder carr (DOUDA et al. 2016), some of the newly described syntaxa might group within broadly understood macroassociations *Salicetum albae* s. lat. and *Stellario-Alnetum glutinosae* s. lat.

The studied riverine forest communities mainly belong among the habitat types of Community interest (DAKSKOBLER, KUTNAR & ŠILC 2013). They are also site of some protected and Red List species (ANON. 2002, 2004) such as *Pseudostellaria europaea*, *Ranunculus aesontinus*, *Orobanche hederae*, *Leucojum aestivum*, *Ruscus aculeatus*, *Iris pseudacorus*, *Erythronium dens-canis*, *Galanthus nivalis*, *Lilium martagon*, *Helleborus odorus*, *Helleborus odorus* subsp. *istriacus*, *Cyclamen purpurascens*, *Neottia nidus-avis*, *Listera ovata*, *Convallaria majalis*, *Dactylorhiza fuchsii*, *Platanthera chlorantha*, *Ilex aquifolium* and *Ophioglossum vulgatum*. The stands of the studied communities are mainly preserved on small areas surrounded by farmland and are subject, especially in the Vipava Valley, to clear-cuttings and other major spatial interventions. They are also exposed to aggressive penetration of alien invasive species, especially *Robinia pseudoacacia* and *Acer negundo*, in places also *Spiraea japonica*, *Quercus rubra*, *Ailanthes altissima*, *Impatiens glandulifera*, *Solidago gigantea*, *Helianthus tuberosus* and others.

5 POVZETEK

Po standardni srednjeevropski metodi smo raziskali obrežne gozdove v Vipavski dolini (62 popisov) in dolini Reke (25 popisov). Popise smo vnesli v bazo FloVe-gSi (T. SELIŠKAR, VREŠ & A. SELIŠKAR 2003) in jih računalniško obdelali s programskim paketom SYN-TAX (PODANI 2001).

5.1 Logi bele vrbe

Pionirske sestoj rdeče vrbe ob reki Vipavi začasno uvrščamo v asociacijo *Lamio orvalae-Salicetum purpureae* nom. prov., dva popisa pionirskega gozda s prevladujočim ameriškim javorjem (*Acer negundo*) ob reki Lijak pa v asociacijo *Ornithogalo pyrenaici-Aceretum negundi* nom. prov.

V obeh raziskovanih območjih smo naredili 24 popisov obrežnih sestojev s prevladujočima belo vrbo ali črnim topolom v drevesni plasti, večino ob reki Vipavi v njenem srednjem teku. Za ustrezno sintaksonomsko uvrstitev smo jih primerjali skupaj z drugimi našimi popisi združb bele vrbe ob reki Soči (glej tudi DAKSKOBLER, ŠILC & ČUŠIN 2004), ob Savi Bohinjki (DAKSKOBLER & ROZMAN 2013), ob reki Savi v Zasavju (VREŠ et al. 2010). Popisi so se združevali v dve veliki skupini (slika 2), zato smo jih uredili v dve analitski preglednici (preglednici 2 in 3). Za njihovo ustrezno sintaksonomsko uvrstitev smo izdelali sintezno tabelo (preglednica 4), v katero smo uvrstili združbe bele vrbe ob Krki in Mirni (ŠILC (2003), Dravi (JAVORNIK (2013), Muri ČARNI et al. (2008), P. KOŠIR et al. (2013)), združbe bele vrbe v Avstriji (KARNER 2007) in v severovzhodni Italiji POLDINI, VIDALI & GANIS, (2011). V sintezno tabelo za zdaj nismo uvrstili pionirske oblike združbe bele vrbe (*Salicetum albae* s. lat.) ob Sotli, ki jo je opisal CIMPERSK (2010, tabela 1). Ta se po vrstni sestavi očitno razlikuje od preučenih združb bele vrbe v Vipavski dolini in dolini Reke in kaže največjo podobnost z združbo bele vrbe ob rekah Krki in Mirni.

Primerjani sintaksoni se združujejo v tri skupine. V prvi skupini so združbe bele vrbe iz porečij Vipave, Reke, Soče in Save, prav tako združbe bele vrbe ob Dravi in Muri. V drugi skupini so združba bele vrbe ob Krki in Mirni na Dolenjskem in združbe bele vrbe iz Avstrije. V tretji skupini so združbe bele vrbe iz severne Italije. Na nekatere razlike med primerjanimi sintaksoni pokaže tudi analiza po skupinah diagnostičnih vrst (preglednica 5). V prvi skupini so v glavnem združbe bele vrbe na naplavnah hitreje tekočih rek, na produ in mivki. Naplavine so ponekod nekoliko dvignjene nad gladino reke. Tla so nerazvita, obreč-

na, navadno vsako leto nekajkrat popavljenja, a občasno tudi precej suha. K delnemu osuševanju rastišč pogosto vpliva človek, predvsem z regulacijami rečnih brežin in izkopom proda. Od pravih nižinskih združb bele vrbe, v katerih so tla v večjem delu leta vlažna ali celo mokra, se preučene združbe najbolj očitno ločijo po bistveno večjem deležu vrst zvezze *Tilio-Acerion*, reda *Fagetalia sylvatica* in razreda *Querco-Fagetea* in po bistveno manjšem deležu vrst iz razreda *Phragmiti-Magnocaricetea*. V njihovi vrstni sestavi se kaže sukcesijski razvoj proti združbam iz zvezze *Alnion incanae*, kar so ugotovili tudi POLDINI, VIDALI & GANIS (2011). V Avstriji takšne sestoje uvrščajo v subasociacijo *Salicetum albae cornetosum*, a je njihova floristična sestava očitno drugačna od floristične sestave preučenih združb (slika 3). Sestoje bele vrbe v Sloveniji, še posebej v njenem zahodnem in jugozahodnem delu, dobro razlikujejo tudi nekatere vrste iz zvez *Erythronio-Carpinetum* in *Aremonio-Fagion*, kar je deloma povezano z okoliško prevladujočo gozdno vegetacijo.

Na podlagi teh ugotovitev preučevane združbe bele vrbe ob rekah Vipavi in Reki uvrščamo v novo asociacijo *Lamio orvalae-Salicetum albae* ass. nov. Njen nomenklaturni tip, *holotypus*, je popis št. 20 v tabeli 2. Diagnostične vrste nove asociacije so *Salix alba*, *Lamium orvala*, *Ranunculus ficaria*, *Galanthus nivalis*, *Lunaria rediviva* in *Arum maculatum*, torej predvsem vrste, ki kažejo na prehodni položaj teh sestojev proti združbam iz zvezze *Alnion incanae*. Posebnost logov bele vrbe ob reki Vipavi v primerjavi z združbo bele vrbe ob rekah Reki in Soči je v sestavi zgornje drevesne plasti, v kateri je pogosto prevladujoč črni topol (*Populus nigra*), v spodnji drevesni in grmovni plasti se močno širi ameriški javor (*Acer negundo*). V zeliščni plasti te sestoje najbolj označujejo vrste *Carex pendula*, *Ruscus aculeatus* in *Ornithogalum pyrenaicum*, ki so tudi razlikovalnice nove subasociacije *Lamio orvalae-Salicetum albae caricetosum pendulae*. Njen nomenklaturni tip, *holotypus*, je popis št. 20 v tabeli 2. Naštete vrste to združbo označujejo ekološko (naplavine na flišu s prevladujočimi prodniki laporovca, glinavca in peščenjaka) in fitogeografsko (submediteransko območje s toplim podnebjem). Popisi združb bele vrbe iz doline Reke so se združevali skupaj z drugimi našimi popisi iz Zgornjega Posočja in nekaterih drugih delov Slovenije (preglednica 3). Te sestoje uvrščamo v novo subasociacijo *Lamio orvalae-Salicetum albae ranunculetosum lanuginosae*. Njene razlikovalnice so vrste *Ranunculus lanuginosus*, *Cardamine amara*, *Impatiens noli-tangere*, *Fraxinus excelsior* in *Leucojum verum*. Naštete vrste kažejo na bolj razvita vlažna obrečna tla,

prehod v združbe iz zveze *Alnion incanae* in na v primerjavi s prej opisano subasociacijo bolj hladno podnebje. Drugačna je tudi sestava naplavin, v kateri navadno prevladujejo karbonatni prodniki in mivka.

Nomenklturni tip, *holotypus*, subasociacije *Lamio orvalae-Salicetum albae ranunculetosum lanuginosae* je popis št. 18 v tabeli 3. Znotraj te subasociacije razlikujemo varianto z vrsto *Leucojum vernum* (*Lamio orvalae-Salicetum albae ranunculetosum lanuginosae* var. *Leucojum vernum*), v katero uvrščamo popise, ki smo jih prvotno opisali kot sintakson *Salicetum albae* Issler 1926 *leucojetosum verni* Šilc, Čušin & Dakskobler in Dakskobler, Šilc et Čušin 2004 (DAKSKOBLER, ŠILC & ČUŠIN, 2004, Tabela 1, popisi 3–15). Da ti popisi ne sodijo v asociacijo *Salicetum albae* s. str. so v svoji primerjavi ugotovili tudi POLDINI, VIDALI & GANIS (2011: 144).

V asociacijo *Lamio orvalae-Salicetum albae* bi po naših primerjavah lahko uvrstili tudi združbe bele vrbe ob Muri (ČARNI et al. 2008; KOŠIR et al. 2013) in Dravi (JAVORNIK 2013), čeprav v teh sestojih niso opisali nekaterih diagnostičnih vrst te asociacije, predvsem ne vrste *Lamium orvala*, ki pa uspeva tudi ob Dravi in Muri (slika 4).

5.2 Logi črne jelše, doba in belega gabra

Za ustrezno sintaksonomsko uvrstitev sestojev s prevladajočo črno jelšo v Vipavski dolini in dolini Reke smo izdelali sintezno preglednico (priloga 1, dostopna je v elektronski obliki), v katero smo poleg naših še ne objavljenih združb upoštevali do zdaj opisane združbe črne jelše iz Slovenije (ACCETTO 1994) in severne Italije (SBURLINO et al. 2011).

Rezultati (slika 6) so pokazali, da se je večina popisov iz Vipavske doline in doline Reke združevala ločeno od popisov asociacij *Stellario-Alnetum glutinosae*, *Carici elongatae-Alnetum glutinosae*, *Corno hungaricae-Alnetum glutinosae* in *Carici elatae-Alnetum glutinosae*. Izjema so štirje popisi, ki smo jih naredili ob potoku Kobljak in ob Reki pri Topolcu, v katerih pa ne uspevata vrsti *Carex elongata* in *Carex elata*, pač pa, a le na nekaterih popisih, vrste *Carex acuta*, *C. rostrata* in *C. riparia*. Teh sestojev v tem članku za zdaj ne obravnavamo, za njihovo ustrezno sintaksonomsko uvrstitev bomo poskušali poiskati še nekaj dodatnih popisov.

Večina preučenih sestojev črne jelše torej ne sodi v jelšev grez, temveč v skupino obrečnih (obvodnih) logov. Takšna črna jelševja v Sloveniji v glavnem uvrščamo v asociacijo *Stellario nemorum-Alnetum glutinosae* (CIMPREŠEK 2013) in podobne združbe tudi širše v Evropi uvrščajo v to asociacijo (DOUDA et al.

2016). Naši popisi ekološko ustrezajo rastiščem te asociacije, nikakor pa ne po floristični sestavi. Zato smo popise s prevladajočo črno jelšo, ki smo jih naredili v dolini Reke (preglednica 8) uvrstili v novo asociacijo *Lamio orvalae-Alnetum glutinosae*. Njene diagnostične vrste so *Alnus glutinosa*, *Lamium orvala*, *Ornithogalum pyrenaicum* in *Galanthus nivalis*. V novo asociacijo uvrščamo v glavnem pionirske sestope črne jelše in velikega jesena s posamično primesjo bele vrbe, črnega topola in predvsem v spodnji drevesni plasti tudi belega gabra in poljskega javorja (*Acer campestre*) na obrečnih tleh ali evtričnih rjavih tleh, predvsem ob potokih, na območjih, kjer prevladuje mešana geološka podlaga (fliš, laporovec, apnenec s primesjo laporovca). Pogosto so bili tovrstni obrečni gozdovi, ki so le občasno poplavljeni, izkrčeni za kmetijske površine (travnike, sadovnjake). Njihova zdajšnja podoba je drugotna. So dolgotrajeni pionirski stadiji, ki se na avtomorfnih tleh lahko v drugotni sukcesiji razvije v združbe belega gabra (*Ornithogalo-Carpinetum*) ali celo bukve (*Ornithogalo-Fagetum*). Novo asociacijo uvrščamo v zvezo *Alnion incanae*. Njen nomenklturni tip, *holotypus*, je popis št. 9 v preglednici 8. V dolini Reke za zdaj razlikujemo dve varianti, bolj vlagoljubno variante na obrečnih tleh z vrsto *Scilla bifolia* (njena razlikovalnica je tudi vrsta *Allium ursinum*) in bolj pionirsko obliko na prevladajočih evtričnih tleh, variante z vrsto *Cardamine bulbifera* (razlikovalnica je tudi vrsta *Crocus vernus* subsp. *vernus* = *C. napolitanus*). V Vipavski dolini smo v asociacijo *Lamio orvalae-Alnetum glutinosae* za zdaj uvrstili deset popisov (popisi 10–19 v preglednici 7). Naredili smo jih na različnih nahajališčih, v glavnem ob stranskih potokih (Jovšček, Lijak, Pasji rep) in v Panovcu, na obrečnih, ponekod tudi psevdoglejnih tleh. V drevesni plasti poleg prevladajoče črne jelše ponekod posamično rastejo tudi dob (*Quercus robur*), ozkolistni jesen (*Fraxinus angustifolia*) in poljski brest (*Ulmus minor*). Vrsti *Fraxinus excelsior* in *Carpinus betulus* sta v teh sestojih nekoliko redkejši kot v sestojih v dolini Reke.

Nekaj popisov s prevladajočo ali pogosto črno jelšo v drevesni plasti (popisi 25–29 v preglednici 7), predvsem v dolini Branice in ob Lijaku, se je združevalo z ostalimi popisi, ki jih uvrščamo v asociacijo *Ornithogalo-Carpinetum betuli*. To asociacijo so MARINČEK, POLDINI & ZUPANČIČ (1983) opisali v spodnji Vipavski dolini in deloma tudi v srednjem Posočju in severovzhodni Italiji. Naše popise smo naredili na nekoliko dvignjenih, a še vedno občasno poplavljene terasah ob Raši in Branici, redkeje tudi ob Vipavi in Lijaku. V drevesni plasti ohranjenih sestojev prevladujejo vrste *Carpinus betulus*, *Alnus glutinosa* in *Acer campestre*. Posamično so primešane vrste *Fraxinus*

excelsior, *Acer pseudoplatanus*, *Ulmus glabra* in *U. minor*. Pogosto v drevesni plasti prevlade robinija (*Robinia pseudoacacia*), ker je posledica panjevskega gospodarjenja. Njena prevlada je splošna značilnost tudi v drugih oblikah te asociacije na Goriškem in v Vipavski dolini. Naše sestoje ne moremo uvrstiti v nobeno od do zdaj opisanih subasociacij: *-ostryetosum carpinifoliae* in *-caricetosum pilosae* (MARINČEK, POLDINI, ŽUPANČIČ, ibid.). Nekoliko podobni so sestoje sintaksona *Ornithogalo-Carpinetum caricetosum pilosae* var. *Quercus robur* subvar. *Equisetum telmateia*, vendar je v naših popisih dob zelo redek, prav tako vrsta *Carex pilosa* (našli smo jo na enem samem popisu), vrste *Equisetum telmateia* pa sploh nismo popisali. Zato jih uvrščamo v novo subasociacijo *Ornithogalo-Carpinetum betuli lamietosum orvalae* subass. nov. Označuje razmeroma vlažna rastišča na terasah potokov in manjših rek na prehodu med obrečnimi (hidromorfnimi) in avtomorfnimi (evtričnimi) tleh, ki se v sestojih ponekod kot pionir uveljavlja tudi črna jelša. Novo subasociacijo smo imenovali po vrsti *Lamium orvala*, ki je sicer pogosta tudi v drugih oblikah asociacije *Ornithogalo-Carpinetum*, a kaže na mezofilna obrečna rastišča in določeno podobnost in stik s sestoji asociacije *Lamio orvalae-Alnetum glutinosae*. Fitogeografska razlikovalnica je takson *Helleborus odorus* subsp. *istriacus* (= *H. multifidus* subsp. *istriacus*), ki označuje predvsem sestoje ob Raši in Branici, kjer ima severno mejo svoje razširjenosti. Nomenklturni tip, *holotypus*, subasociacije *Ornithogalo-Carpinetum betuli lamietosum orvalae* je popis št. 33 v tabeli 7. Popise št. 25–29 lahko vrednotimo kot sintakson *Ornithogalo-Carpinetum lamietosum orvalae* var. *Alnus glutinosa*.

V sintezni primerjavi (slika 6) sta se ločeno od ostalih združevali dva sintaksona. V prvega smo uvrstili popise s prevladajočo vrsto *Fraxinus angustifolia* na obrečnih tleh v slovenskem delu Istre. Začasno te popise uvrščamo v asociacijo *Rusco aculeati-Fraxinetum angustifoliae* nom. prov. (Daks kobler & Sadar 2016, mscr.). V drugem floristično posebnem sintaksonu so združeni popisi mešanih sestojev s prevladajočimi vrstami *Quercus robur*, *Alnus glutinosa*, *Fraxinus angustifolia*, *Ulmus minor* in *Carpinus betulus* (slednji raste predvsem v spodnji drevesni plasti) na psevdoglejnih in oglejenih tleh na desnem bregu potoka Lijak (Log, Butnica) med Ajševico in Vogrskim. Ti sestoji se niso združevali z združbami črne jelše na psevdoglejnih in oglejenih tleh (asociacije *Carici elongatae-Alnetum glutinosae*, *Carici acutae-Alnetum glutinosae* nom. prov., *Carici randalpinae-Alnetum glutinosae* nom. prov.), niti s sestoji sintaksonov *Ornithogalo-Carpinetum betuli lamietosum orvalae* in *Lamio orvalae-Alnetum glutinosae*, čeprav so po celotni vrstni sestavi tem

bližje kot združbam črne jelše v osrednji, vzhodni, jugozahodni in jugovzhodni Sloveniji. Teh sestojev ne moremo uvrstiti v prevladajočo okoliško gozdno združbo v gričevju jugovzhodno od Nove Gorice, v asociacijo *Ornithogalo-Carpinetum*, niti v njeno najbolj vlagoljubno obliko *-caricetosum pilosae* var. *Quercus robur* subvar. *Equisetum telmateia*. V primerjavi z njo ima v preučenih sestojih bistveno večje srednje zaširanje vrsta *Alnus glutinosa*, razlikovalne pa so vrste *Fraxinus angustifolia*, *Ulmus minor* in *Leucojum aestivum*. Te očitne razlike kažejo na precej bolj vlagoljubno združbo na hidromorfnih tleh, ki je ne moremo uvrstiti v zvezo *Erythronio-Carpinion*, katere združbe v glavnem uspevajo na avtomorfnih tleh (rjava pokarbonatna ali evtrična rjava tla). Za ustrezno sintaksonsko uvrstitev smo izdelali sintezno preglednico (preglednica 9), v kateri smo naše sestoje primerjali s sestoji sintaksonov *Pseudostellario-Carpinetum betuli* (ACCETTO 1974), *Pseudostellario-Quercetum roboris leucojetosum aestivi* (ACCETTO 1995) in *Fraxino-Ulmeturn effusae quercetosum roboris* (P. KOŠIR et al. 2013). Primerjava je pokazala, da so preučeni sestoji ob Lijaku po vrstni sestavi še najbolj podobni sestojem asociacije *Pseudostellario-Carpinetum betuli*, manj pa sestojem asociacij *Pseudostellario-Quercetum roboris* (v to asociacijo bi morda lahko uvrstili popis št. 9 v preglednici 7) in *Fraxino-Ulmeturn effusae quercetosum roboris*. Na razlike med njimi pokaže tudi analiza po skupinah diagnostičnih vrst (preglednica 10). V sestojih preučenega sintaksona je, podobno kot v sestojih asociacije *Pseudostellario-Carpinetum betuli*, bistveno večji delež diagnostičnih vrst razreda *Querco-Fagetea* in *Fagetalia sylvaticae* (skupno več kot 45 %) kot v sestojih sintaksona *Pseudostellario-Quercetum petraeae* (manj kot 20 %). Sestoji sintaksona *Pseudostellario-Quercetum roboris* izstopajo po visokem deležu diagnostičnih vrst naslednjih sintaksonomskih enot: *Alnion incanae*, *Alno-Quercion roboris*, *Calthion*, *Molinietalia caeruleae* in *Phragmiti-Magnocaricetea*, sestoji sintaksona *Fraxino-Ulmeturn effusae quercetosum roboris* pa po visokem deležu sintaksonomskih enot *Alno-Quercion roboris* in *Galio-Urticetea*. V preučenih sestojih je v primerjavi s sestoji asociacije *Pseudostellario-Carpinetum* v jugovzhodni Sloveniji očitno večji delež diagnostičnih vrst zveze *Erythronio-Carpinion* in razreda *Querco-Fagetea* ter očitno manjši delež vrst sintaksonomskih skupin *Fagetalia sylvaticae*, *Vaccinio-Piceetea*, *Molinio-Arrhenatheretea* in *Galio-Urticetea*. Na podlagi navedenih primerjav je med mogočimi izbirami za zdaj najbolj ustrezna uvrstitev sestojev ob Lijaku v novo subasociacijo *Pseudostellario-Carpinetum betuli leucojetosum aestivi* subass. nov. Njen nomenklturni tip, *holotypus*, je popis št. 5 v preglednici

št. 7. Diagnostične vrste asociacije *Pseudostellario-Carpinetum Quercus robur, Carex remota* in *Pseudostellaria europaea* so v naših popisih dobro zastopane, manjka le vrsti *Gagea spathacea* in *Pulmonaria dacica*. Razlikovalnice nove subasociacije -*leucojetosum aestivum* so vrste *Leucojum aestivum*, *Fraxinus angustifolia*, *Lamium orvala* in *Allium ursinum*, ki kažejo na zelo vlagoljubno dobovo-belogabrovo združbo, ki je po svoji ekologiji precej podobna tudi sestojem še nekoliko bolj vlagoljubne asociacije *Pseudostellario-Quercetum roboris*. Sestoje v logih ob Lijaku uvrščamo v novo geografsko varianto *Pseudostellario-Carpinetum betuli* var. geogr. *Ranunculus aeontinus* var. geogr. nova. Razlikovalnici geografske variante sta vrsti *Ranunculus aeontinus* in *Ruscus aculeatus*, ki kažeta na uspevanje teh sestojev v zahodni Sloveniji in v submediterranskem fitogeografskem območju. Vrsta *Ranunculus aeontinus* je endemit jugozahodnih Julijskih Alp s prigorjem (slika 8), razširjena le v Posočju in v sosednji Furlaniji Julijski krajini (WRABER 1996: 87, POLDINI 2002: 400) in obravnavane sestoje označuje tako fitogeografsko kot ekološko, saj je značilnica nižinskih in gričevnatih gozdnih združb na vlažnih rastiščih. Došlej smo sestoje asociacije *Pseudostellario-Carpinetum betuli* poznali predvsem v jugovzhodni Sloveniji, v preddinarskem in subpanonskem fitogeografskem območju (ACCETTO 2006).

5.3 Zaključki

Obravnavane obrežne gozdne združbe večinoma sodijo med evropsko varstveno pomembne habitatne tipe (DAKSKOBLER, KUTNAR & ŠILC 2013). V njih uspevajo tudi nekatere zavarovane vrste in vrste iz rdečega seznama (ANON. 2002, 2004), kot so *Pseudostellaria europaea*, *Ranunculus aeontinus*, *Orobanche hederae*, *Leucojum aestivum*, *Ruscus aculeatus*, *Iris pseudacorus*, *Erythronium dens-canis*, *Galanthus nivalis*, *Lilium martagon*, *Helleborus odorus*, *Helleborus odorus* subsp. *istriacus*, *Cyclamen purpurascens*, *Neottia nidus-avis*, *Listera ovata*, *Convallaria majalis*, *Dactylorhiza fuchsii*, *Platanthera chlorantha*, *Ilex aquifolium* in *Ophioglossum vulgatum*. Večinoma so sestoji obravnavanih združb ohranjeni na majhnih površinah, obdani s kmetijsko krajino in še posebej v Vipavski dolini izpostavljeni krčitvam in drugim grobim posegom v prostor. Vanje agresivno prodirajo tujerodne invazivne vrste, še posebej *Robinia pseudoacacia* in *Acer negundo*, ponekod tudi *Spiraea japonica*, *Quercus rubra*, *Ailanthus altissima*, *Impatiens glandulifera*, *Solidago gigantea*, *Helianthus tuberosus* in druge.

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ABBREVIATIONS – OKRAJŠAVE

Parent material (Geološka podlaga)

Al Alluvium – rečni nanosi

Soil types (Talni tipi)

Fl Fluvisols – obrečna tla

Pg Pseudogley and gley soils – pseudoglej in oglejena tla

Eu Eutric brown soil – evtrična rjava tla



Figure 9: Stand of the association *Lamio orvalae-Salicetum albae*, the Vipava Valley
Slika 9: Sestoj asociacije *Lamio orvalae-Salicetum albae*, Vipavska dolina



Figure 10: Stand of the association *Ornithogalo-Aceretum negundi*, Lijak
Slika 10: Sestoj asociacije *Ornithogalo-Aceretum negundi*, Lijak



Figure 11: Stand of the association *Lamio orvalae-Alnetum glutinosae*, Brkini
Slika 11: Sestoj asociacije *Lamio orvalae-Alnetum glutinosae*, Brkini



Figure 12: Stand of the subassociation *Pseudostellario-Carpinetum betuli leucojetosum aestivi*, Lijak
Slika 12: Sestoj subasociacije *Pseudostellario-Carpinetum betuli leucojetosum aestivi*, Lijak

Photos- Fotografije (Photo / Foto: I. Dakskobler)

Table 1 (Preglednica 1): Lamio orvalae-Salicetum purpureae nom. prov.

Number of relevé (Zaporedna številka popisa)		1
Database number of relevé (Delovna številka popisa)		259352
Elevation in m (Nadmorska višina v m)		70
Aspect (Lega)		0
Slope in degrees (Nagib v stopinjah)		0
Parent material (Matična podlaga)		Al
Soil (Tla)		Fl
Stoniness in % (Kamnitost v %)		0
Cover in % (Zastiranje v %):		
Shrub layer (Grmovna plast)	E2	80
Herb layer (Zeliščna plast)	E1	20
Number of species (Število vrst)		17
Relevé area (Velikost popisne ploskve)	m ²	200
Date of taking relevé (Datum popisa)		14.4.2015
Locality (Nahajališče)		Selo
Quadrant (Kvadrant)		0148/2
Coordinate GK Y (D-48)	m	406780
Coordinate GK X (D-48)	m	5081966
SA <i>Salicion albae</i>		
<i>Populus nigra</i>	E2b	+
<i>Salix alba</i>	E2b	+
<i>Acer negundo</i>	E2a	+
SP <i>Salicetalia purpureae</i>		
<i>Salix purpurea</i>	E2b	4
AG <i>Alnetea glutinosae</i>		
<i>Alnus glutinosa</i>	E2b	+
AQr <i>Alno-Quercion roboris</i>		
<i>Fraxinus angustifolia</i>	E1	+
AF <i>Arenonio-Fagion</i>		
<i>Lamium orvala</i>	E1	+
QF <i>Querco-Fagetea</i>		
<i>Ranunculus ficaria</i>	E1	1
FB <i>Festuco-Brometea</i>		
<i>Brachypodium rupestre</i>	E1	+
Mo <i>Molinietalia caeruleae</i>		
<i>Sanguisorba officinalis</i>	E1	+
PP <i>Potentillo-Polygonetalia</i>		
<i>Rumex conglomeratus</i>	E1	+
MA <i>Molinio-Arrhenatheretea</i>		
<i>Poa trivialis</i>	E1	
<i>Dactylis glomerata</i>	E1	+
PM <i>Phragmiti-Magnocaricetea</i>		
<i>Phalaris arundinacea</i>	E1	+
GU <i>Galio-Urticetea</i>		
<i>Alliaria petiolata</i>	E1	+
<i>Urtica dioica</i>	E1	+
<i>Galium aparine</i>	E1	+
O Other species (Druge vrste)		
<i>Allium ampeloprasum</i>	E1	+

Table 2 (Preglednica 2): *Lamio orvalae-Salicetum albae carictosum pendulae*

Number of relevé (Zaporedna številka popisa)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Database number of relevé (Delovna številka popisa)																						
Elevation in m (Nadmorska višina v m)																						
Aspect (Legă)																						
Slope in degrees (Nagib v stopinjah)																						
Parent material (Matična podlaga)																						
Soil (Tla)																						
Stoniness in % (Kamnitost v %)																						
Cover in % (Zastirjanje v %)																						
Upper tree layer (Zgornja drevesna plast)																						
Lower tree layer (Spodnja drevesna plast)																						
Shrub layer (Grmova plast)																						
Herb layer (Želiščna plast)																						
Moss layer (Mahovja plast)																						
Maximum diameter of trees (Naivečji prsní premer dreves)																						
Maximum height of trees (Največja drevesna višina)																						
Number of species (Število vrst)																						
Relevé area (Velikost popisne ploskve)																						
Date of taking relevé (Datum popisa)																						
Locality (Nahajališče)																						
Quadrant (Kvadrant)																						
Coordinate GK X (D-48)																						
Coordinate GK Y (D-48)																						
Diagnostic species of the association (Diagnostične vrste asociacije)																						
SA <i>Salix alba</i>																						
SA <i>Salix alba</i>																						
AF <i>Lamium orvala</i>																						
QF <i>Ranunculus ficaria</i>																						
EC <i>Galanthus nivalis</i>																						
TA <i>Lunaria rediviva</i>																						
TA <i>Arum maculatum</i>																						

		Fr.	Pr.																			
Number of relevé (Zaporedna številka popisa)																						
AI	<i>Carex pendula</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
EC	<i>Ornithogalum pyrenaicum</i>	EI	2	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
QP	<i>Ruscus aculeatus</i>	EI	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SA	<i>Salicetalia albae</i>	E3b	3	3	5	4	3	3	4	4	2	4	3	2	1	4	3	2	1	4	+	2
	<i>Populus nigra</i>	E2a	+	r	+	r	+	r	+	r	+	r	+	r	+	r	+	r	+	r	+	r
	<i>Populus nigra</i>	E3b	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	<i>Acer negundo</i>	E3a	3	3	3	3	3	3	3	3	2	3	2	2	2	2	2	2	2	2	2	2
	<i>Acer negundo</i>	E2b	3	2	3	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	<i>Acer negundo</i>	E2a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	<i>Acer negundo</i>	E1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	<i>Salix fragilis</i>	E3b	1	r	1	r	1	r	1	r	1	r	1	r	1	r	1	r	1	r	1	r
	<i>Vitis sylvestris</i>	E3a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	<i>Solanium dulcamara</i>	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SP	<i>Salicetalia purpureae</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	<i>Salix elegans</i>	E3b	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Salix elegans</i>	E3a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Salix purpurea</i>	E2b	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Salix purpurea</i>	E3a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Salix viminalis</i>	E3b	1	+	1	+	1	+	1	+	1	+	1	+	1	+	1	+	1	+	1	+
AG	<i>Alnetea glutinosae</i>	E3a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Alnus glutinosa</i>	E2b	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Alnus glutinosa</i>	E2a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Ribes nigrum</i>	E1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
AQr	<i>Alno-Quercion roboris</i>	E3b	1	+	1	+	1	+	1	+	1	+	1	+	1	+	1	+	1	+	1	+
	<i>Fraxinus angustifolia</i>	E3a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Fraxinus angustifolia</i>	E2b	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Fraxinus angustifolia</i>	E2a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Fraxinus angustifolia</i>	E1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	<i>Ulmus laevis</i>	E3b	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Ulmus laevis</i>	E3a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Ulmus laevis</i>	E2b	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Ulmus laevis</i>	E2a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Ulmus laevis</i>	E1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	<i>Quercus robur</i>	E3b	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Quercus robur</i>	E2a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Quercus robur</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
AI	<i>Alinion incanae</i>	E1	4	4	3	3	3	3	4	2	2	2	2	1	1	1	1	1	1	1	1	1
	<i>Rubus caesius</i>	E2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	<i>Humulus lupulus</i>	E3a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Equisetum arvense</i>	E2b	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>Aesculus hippocastanum</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	<i>Festuca gigantea</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	<i>Carex remota</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	<i>Cardamine impatiens</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
EC	<i>Erythronio-Carpinion</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	<i>Helleborus odorus</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	<i>Crocus vernus subsp. <i>vernus</i></i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	<i>Primula vulgaris</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	<i>Lonicera caprifolium</i>	E2a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
AF	<i>Arenario-Fragion</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	<i>Hacquetia epipactis</i>	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Number of relevé (Zaporedna številka popisa)	Fr.	22	Pr.
TA	Tilio-Acerion			
	<i>Acer pseudoplatanus</i>		9	
	<i>Acer pseudoplatanus</i>		14	
	<i>Acer pseudoplatanus</i>		14	
	<i>Juglans regia</i>		18	
	<i>Juglans regia</i>		14	
	<i>Juglans regia</i>		23	
	<i>Juglans regia</i>		23	
	<i>Juglans regia</i>		23	
	<i>Acer platanoides</i>		18	
	<i>Tilia platyphyllos</i>		9	
	<i>Droopieris affinis</i>		5	
	Fagetalia sylvatiae		5	
	<i>Brachypodium sylvaticum</i>		18	
	<i>Sambucus nigra</i>		73	
	<i>Sambucus nigra</i>		41	
	<i>Sambucus nigra</i>		5	
	<i>Sambucus nigra</i>		5	
	<i>Circcea lutetiana</i>		18	
	<i>Symplyrum tuberosum</i>		12	
	<i>Viola reichenbachiana</i>		41	
	<i>Polygonatum multiflorum</i>		32	
	<i>Heracleum sphondylium</i>		32	
	<i>Galeobdolon montanum</i>		27	
	<i>Allium ursinum</i>		23	
	<i>Carex sylvatica</i>		23	
	<i>Scrophularia nodosa</i>		18	
	<i>Cardamine bulbifera</i>		14	
	<i>Fraxinus excelsior</i>		9	
	<i>Fraxinus excelsior</i>		5	
	<i>Fraxinus excelsior</i>		9	
	<i>Carpinus betulus</i>		5	
	<i>Carpinus betulus</i>		9	
	<i>Corydalis cava</i>		9	
	<i>Salvia glutinosa</i>		2	
	<i>Prunus avium</i>		5	
	<i>Asarum europaeum subsp. caucasicum</i>		5	
	<i>Mercurialis perennis</i>		5	
	<i>Paris quadrifolia</i>		5	
	<i>Campanula trachelium</i>		5	
	<i>Fraxinus ornus</i>		5	
	Querceto-petraea		5	
	<i>Quercus pubescens-petraea</i>		82	
	<i>Fraxinus excelsior</i>		86	
	<i>Fraxinus excelsior</i>		41	
	<i>Fraxinus excelsior</i>		6	
	<i>Fraxinus excelsior</i>		68	
	<i>Corylus avellana</i>		50	
	<i>Corylus avellana</i>		5	
	<i>Corylus avellana</i>		15	
	<i>Corylus avellana</i>		15	
	<i>Hedera helix</i>		5	
	<i>Anemone nemorosa</i>		14	
	<i>Corylus avellana</i>		12	
	<i>Corylus avellana</i>		55	
	<i>Acer campestre</i>		64	
	<i>Acer campestre</i>		14	
	<i>Acer campestre</i>		68	
	<i>Anemone ranunculoides</i>		18	
QP	Querco-Fagetea		6	
	<i>Carex flacca</i>		2	
	<i>Hedera helix</i>		2	
	<i>Anemone nemorosa</i>		4	
	<i>Corylus avellana</i>		6	
	<i>Corylus avellana</i>		27	
	<i>Corylus avellana</i>		55	
	<i>Acer campestre</i>		12	
	<i>Acer campestre</i>		14	
	<i>Acer campestre</i>		64	
	<i>Anemone ranunculoides</i>		18	
QF	Querco-Fagetea		2	
	<i>Carex flacca</i>		2	
	<i>Hedera helix</i>		2	
	<i>Anemone nemorosa</i>		4	
	<i>Corylus avellana</i>		6	
	<i>Corylus avellana</i>		15	
	<i>Corylus avellana</i>		50	
	<i>Acer campestre</i>		5	
	<i>Acer campestre</i>		14	
	<i>Acer campestre</i>		64	
	<i>Anemone ranunculoides</i>		18	

Number of relevé (Zaporedna številka popisa)		Fr.	Pr.
<i>Lathraea sativa</i> maria		22	27
<i>Gagea lutea</i>		6	5
<i>Ulmus minor</i>		1	5
<i>Ulmus minor</i>		2	9
<i>Ulmus minor</i>		3	14
<i>Scilla bifolia</i>		1	14
<i>Clematis vitalba</i>		1	14
<i>Clematis vitalba</i>		3	14
<i>Malus sylvestris</i>		1	5
<i>Malus sylvestris</i>		1	5
<i>Malus sylvestris</i>		2	9
<i>Viola alba</i> subsp. <i>alba</i>		1	5
<i>Ceratium sylvaticum</i>		1	5
<i>Orobanche hederae</i>		1	5
RP <i>Rhamno-Prunetea</i>		10	45
<i>Euonymus europaea</i>		1	5
<i>Euonymus europaea</i>		1	5
<i>Euonymus europaea</i>		1	5
<i>Viburnum opulus</i>		1	5
<i>Cornus sanguinea</i>		1	5
<i>Cornus sanguinea</i>		1	5
<i>Cornus sanguinea</i>		1	5
<i>Crataegus monogyna</i>		1	5
<i>Crataegus monogyna</i>		1	5
<i>Crataegus monogyna</i>		1	5
<i>Ligustrum vulgare</i>		1	5
<i>Rhamnus catharticus</i>		1	5
<i>Prunus spinosa</i>		1	5
EA <i>Epilobietea angustifoli</i>		3	14
<i>Arctium minus</i>		2	9
<i>Stachys sylvatica</i>		2	9
<i>Eupatorium cannabinum</i>		1	5
<i>Arctium nemorosum</i>		1	5
<i>Gaeckea speciosa</i>		1	5
<i>Physalis alkekengi</i>		1	5
FB <i>Festuco-Brometea</i>		3	14
<i>Euphorbia verrucosa</i>		1	5
<i>Hippocratea comosa</i>		1	5
CA <i>Caffition</i>		2	9
<i>Angelica sylvestris</i>		1	5
FP <i>Fili-pendulo-Petasition</i>		5	23
<i>Lysimachia vulgaris</i>		6	27
<i>Mysotis aquatica</i>		6	27
<i>Molinietalia caeruleae</i>		3	14
Mo <i>Cochlicium autumnale</i>		1	5
PP <i>Potentillo-Polygonetalia</i>		1	5
<i>Barbarea vulgaris</i>		1	5
<i>Rumex crispus</i>		1	5
<i>Ranunculus repens</i>		1	5
<i>Agrostis stolonifera</i>		1	5
<i>Duchesnea indica</i>		1	5
MA <i>Molinio-Arrhenatheretea</i>		14	64
<i>Poa trivialis</i>		9	41
<i>Dactylis glomerata</i>		6	27
<i>Deschampsia cespitosa</i>		2	9
<i>Aloha reptans</i>		2	9
<i>Gaium mollugo</i>		2	9
<i>Veronica serpylifolia</i>		2	9

	Number of relevé (Zaporedna številka popisa)	Fr.	Pr. Fr.
MuA <i>Millario-Aconitea</i>	<i>Plantago lanceolata</i>	1	2
	<i>Taraxacum officinale</i>	.	.
	<i>Silene dioica</i>	.	.
PM <i>Phragmiti-Magnocaricetea</i>	<i>Phragmites australis</i>	EI	.
	<i>Iris pseudacorus</i>	EI	.
	<i>Carex acuta</i>	EI	.
	<i>Phalaris arundinacea</i>	EI	.
	<i>Lycopodium europaeus</i>	EI	.
GU <i>Galio-Urticetea</i>	<i>Galium aparine</i>	EI	.
	<i>Aegopodium podagraria</i>	EI	.
	<i>Alliaria petiolata</i>	EI	.
	<i>Urtica dioica</i>	EI	.
	<i>Gemm urbanum</i>	EI	.
	<i>Parietaria officinalis</i>	EI	.
	<i>Glechoma hederacea</i>	EI	.
	<i>Galium aparine</i>	EI	.
	<i>Lamium maculatum</i>	EI	.
	<i>Helianthus tuberosus</i>	EI	.
	<i>Impatiens glandulifera</i>	EI	.
	<i>Petasites hybridus</i>	EI	.
	<i>Solidago gigantea</i>	EI	.
	<i>Viola odorata</i>	EI	.
AV <i>Artemisietea vulgaris</i>	<i>Rumex obtusifolius</i>	EI	.
	<i>Artemisia vulgaris</i>	EI	.
	<i>Artemisia verlotiorum</i>	EI	.
SM <i>Stellarietea mediae</i>	<i>Chelidonium majus</i>	EI	.
	<i>Veronica sublobata</i>	EI	.
	<i>Cardamine hirsuta</i>	EI	.
	<i>Allium vineale</i>	EI	.
	<i>Urtica urens</i>	EI	.
	<i>Veronica persica</i>	EI	.
	<i>Poa annua</i>	EI	.
	<i>Plantago major</i>	EI	.
O <i>Eriogonum annuum</i>	<i>Eriogonum annuum</i>	EI	.
O <i>Other species (Druge vrste)</i>	<i>Robinia pseudoacacia</i>	E3b	r
	<i>Robinia pseudoacacia</i>	E3a	.
	<i>Robinia pseudoacacia</i>	E2b	.
	<i>Prunus instititia</i>	E3a	.
	<i>Prunus instititia</i>	E2b	.
	<i>Prunus instititia</i>	E2a	.
	<i>Ficus carica</i>	E1	.
	<i>Viola sororia</i>	E1	.
	<i>Vitis vinifera</i>	E3a	.
	<i>Iris foetidissima</i>	E1	.
	<i>Morus alba</i>	E3a	r
	<i>Malus domestica</i>	E3a	.
	<i>Gleditsia triacanthos</i>	E3a	.
	<i>Platanus x hispanica</i>	E3b	.
	<i>Platanus x hispanica</i>	E2b	.
	<i>Iris germanica</i>	E1	.
Moses, Fungi (Mahovi, lesne glive)	<i>Moses, Fungi (Mahovi, lesne glive)</i>	E0	.
	<i>Platignoniam undulatum</i>	E3a	.
	<i>Lactiporus sulphureus</i>	E3a	.

Table 3 (Preglednica 3): *Lamio orvalae-Salicetum albae ranunculetosum lanuginosae*

Number of relevé (Zaporedna številka popisa)

Database number of relevé (Delovna številka popisa)

Elevation in m (Nadmorska višina v m)

Aspect (Legs)

Slope in degrees (Nagib v stopinjah)

Parent material (Matična podlaga)

Soil (Tla)

Stoniness in % (Kamnitost v %)

Cover in % (Zastiranje v %):

Upper tree layer (Zgorjačna drevesna plast)

Lower tree layer (Spodnja drevesna plast)

Shrub layer (Grmovačna plast)

Herb layer (Zeliščna plast)

Moss layer (Mahovna plast)

Maximum diameter of trees (Največji prsnji premer dreves)

Maximum height of trees (Največja drevesna višina)

Number of species (Število vrst)

Relevé area (Velikost popisne ploskve)

Date of taking relevé (Datum popisa)

Locality (Nahajališče)

Quadrant (Kvadrant)

Coordinate GK Y (D-48)

Coordinate GK X (D-48)

SA	<i>Salix alba</i>	E3b	5	5	4	4	4	5	4	4	4	4	3	4	+	4	24	100
SA	<i>Salix alba</i>	E3a	+	+	+	+	+	+	+	+	+	+	.	.	.	12	50	
SA	<i>Salix alba</i>	E2b	.	.	.	.	.	.	.	.	.	.	.	.	.	1	4
QF	<i>Ranunculus ficaria</i>	E1	+	1	+	1	1	2	+	1	1	2	2	3	1	3	22	92
BC	<i>Galanthus nivalis</i>	E1	r	+	1	1	1	1	1	1	1	1	1	1	1	17	71	
AF	<i>Lamium orvala</i>	E1	.	+	1	1	1	1	1	1	1	1	1	1	1	17	71	
TA	<i>Lunaria rediviva</i>	E1	.	+	1	1	1	1	1	1	1	1	1	1	1	14	58	
TA	<i>Arum maculatum</i>	E1	.	+	1	1	1	1	1	1	1	1	1	1	1	12	50	
FS	<i>Ranunculus lanuginosus</i>	E1	+	1	1	1	1	1	1	1	1	1	1	1	1	1	20	83
FS	<i>Leucojum vernum</i>	E1	.	+	1	1	1	1	1	1	1	1	1	1	1	1	15	63

	Number of relevé (Zaporedna številka popisa)	Fr.	Pr.
FS	<i>Fraxinus excelsior</i>	1	2
FS	<i>Fraxinus excelsior</i>	+	3
FS	<i>Fraxinus excelsior</i>	+	4
FS	<i>Fraxinus excelsior</i>	+	5
FS	<i>Fraxinus excelsior</i>	+	6
MC	<i>Cardamine amara</i>	+	1
A1	<i>Impatiens noli-tangere</i>	+	1
SA	<i>Salicetum albae</i>	+	1
	<i>Acer negundo</i>	r	+
	<i>Acer negundo</i>	+	+
	<i>Acer negundo</i>	+	+
	<i>Populus nigra</i>	+	+
	<i>Solanum dulcamara</i>	+	+
	<i>Salix fragilis</i>	+	+
SP	<i>Salicetum purpureae</i>	+	1
	<i>Salix elegans</i>	+	1
	<i>Salix elegans</i>	+	1
	<i>Salix purpurea</i>	+	1
	<i>Salix purpurea</i>	+	1
AG	<i>Alnetea glutinosae</i>	+	1
	<i>Alnus glutinosa</i>	+	1
	<i>Alnus glutinosa</i>	+	1
	<i>Alnus glutinosa</i>	+	1
	<i>Ribes nigrum</i>	+	1
AQr	<i>Alno-Quercion roboris</i>	+	1
	<i>Ulmus laevis</i>	+	1
	<i>Ulmus laevis</i>	+	1
A1	<i>Alinion incanae</i>	+	1
	<i>Rubus caesius</i>	3	2
	<i>Equisetum arvense</i>	+	1
	<i>Humulus lupulus</i>	+	1
	<i>Humulus lupulus</i>	+	1
	<i>Alnus incana</i>	+	1
	<i>Alnus incana</i>	+	1
	<i>Alnus incana</i>	+	1
	<i>Chrysosplenium alternifolium</i>	+	1
	<i>Hemerocallis fulva</i>	+	1
	<i>Cardamine impatiens</i>	+	1
	<i>Festuca gigantea</i>	+	1
	<i>Frangula alnus</i>	+	1
	<i>Circidea intermedia</i>	+	1
	<i>Equisetum telmateia</i>	+	1
	<i>Carex pendula</i>	+	1
EC	<i>Erythronio-Caprinion</i>	+	1
	<i>Crocus vernus subsp. <i>vernus</i></i>	+	1
	<i>Primula vulgaris</i>	+	1
	<i>Ranunculus aconitifolius</i>	+	1
	<i>Helleborus odorus</i>	+	1
	<i>Orrithogalum pyrenaicum</i>	+	1
	<i>Epinigellum alpinum</i>	+	1
AF	<i>Arenonio-Fagion</i>	+	1
	<i>Anemone trifolia</i>	+	1
	<i>Knautia drymeia s. lat.</i>	+	1
	<i>Isopyrum thalictroides</i>	+	1

		Number of relevé (Zaporedna številka popisa)	Fr.	23	24	Pr.
	<i>Helleborus niger</i> subsp. <i>niger</i>			2	8	
	<i>Cardamine trifolia</i>			1	4	
	<i>Cyclamen purpurascens</i>			1	4	
	<i>Hacquetia epipactis</i>			1	4	
	<i>Scopolia carniolica</i>			+	1	
	<i>Cardamine enneaphyllos</i>			+	1	
TA	Tilio-Acerion			.	.	
	<i>Adoxa moschatellina</i>			.	.	
	<i>Acer pseudoplatanus</i>			.	.	
	<i>Acer pseudoplatanus</i>			.	.	
	<i>Acer pseudoplatanus</i>			.	.	
	<i>Acer pseudoplatanus</i>			.	.	
	<i>Stellaria montana</i>			.	.	
	<i>Corydalis solida</i>			.	.	
	<i>Ulmus glabra</i>			.	.	
	<i>Ulmus glabra</i>			.	.	
	<i>Ulmus glabra</i>			.	.	
	<i>Phyllitis scolopendrium</i>			.	.	
	<i>Juglans regia</i>			.	.	
	<i>Juglans regia</i>			.	.	
	<i>Dryopteris affinis</i>			.	.	
	<i>Geranium robertianum</i>			.	.	
	<i>Aruncus dioicus</i>			.	.	
FS	Fagellata sylvatica			.	.	
	<i>Sambucus nigra</i>			.	.	
	<i>Brachypodium sylvaticum</i>			.	.	
	<i>Allium ursinum</i>			.	.	
	<i>Salvia glutinosa</i>			.	.	
	<i>Asarum europaeum</i> subsp. <i>caucasicum</i>			.	.	
	<i>Corydalis cava</i>			.	.	
	<i>Paris quadrifolia</i>			.	.	
	<i>Cardamine hirsutifera</i>			.	.	
	<i>Symplyatum tuberosum</i>			.	.	
	<i>Cirsium heteritana</i>			.	.	
	<i>Heracleum sphondylium</i>			.	.	
	<i>Tilia cordata</i>			.	.	
	<i>Carpinus betulus</i>			.	.	
	<i>Carpinus betulus</i>			.	.	
	<i>Pulmonaria officinalis</i>			.	.	
	<i>Galeobdolon flavum</i>			.	.	
	<i>Mercurialis perennis</i>			.	.	
	<i>Cardamine pentaphyllos</i>			.	.	
	<i>Viola reichenbachiana</i>			.	.	
	<i>Scrophularia nodosa</i>			.	.	
	<i>Galeobdolon montanum</i>			.	.	
	<i>Gaultheria laevigata</i>			.	.	
	<i>Fagus sylvatica</i>			.	.	
	<i>Campanula trachelium</i>			.	.	
	<i>Polygonatum multiflorum</i>			.	.	
	<i>Daphne mezereum</i>			.	.	
	<i>Lilium martagon</i>			.	.	
	<i>Dryopteris filix-mas</i>			.	.	
	<i>Myosotis sylvatica</i>			.	.	

		Fr.	23	24	Pr.
Number of relevé (Zaporedna številka popisa)					
<i>Ascarum europaeum</i> subsp. <i>europeum</i>		1	1	4	
<i>Euphorbia amygdaloides</i>		1	1	4	
<i>Melica nutans</i>		1	2	3	4
QF	Querco-Fagetea				
<i>Ceratium sylvaticum</i>	E1	+			
<i>Hedera helix</i>	E1	+			
<i>Hedera helix</i>	E1	+			
<i>Anemone ranunculoides</i>	E1	+			
<i>Anemone nemorosa</i>	E1	+			
<i>Listera ovata</i>	E1	+			
<i>Corylus avellana</i>	E1	+			
<i>Corylus avellana</i>	E1	+			
<i>Corylus avellana</i>	E1	+			
<i>Corylus avellana</i>	E1	+			
<i>Venatrum nigrum</i>	E1	+			
<i>Clematis vitalba</i>	E1	+			
<i>Clematis vitalba</i>	E1	+			
<i>Clematis vitalba</i>	E1	+			
<i>Acer campestre</i>	E1	+			
<i>Acer campestre</i>	E1	+			
<i>Acer campestre</i>	E1	+			
<i>Acer campestre</i>	E1	+			
<i>Acer campestre</i>	E1	+			
<i>Lonicera xylosteum</i>	E1	+			
<i>Malus sylvestris</i>	E1	+			
<i>Malus sylvestris</i>	E1	+			
<i>Carex flacca</i>	E1	+			
<i>Viscum album</i> subsp. <i>album</i>	E1	+			
<i>Dactylorhiza fuchsii</i>	E1	+			
<i>Gagea lutea</i>	E1	+			
<i>Carex digitata</i>	E1	+			
<i>Hepatica nobilis</i>	E1	+			
<i>Viola alba</i> subsp. <i>alba</i>	E1	+			
<i>Vicia minor</i>	E1	+			
<i>Moehringia trinervia</i>	E1	+			
VP	Vaccinio-Piceeta				
<i>Oxalis acetosella</i>	E1	+			
<i>Picea abies</i>	E1	+			
<i>Veronica urticifolia</i>	E1	+			
RP	Rhamno-Prunetalia				
<i>Cornus sanguinea</i>	E1	+			
<i>Cornus sanguinea</i>	E1	+			
<i>Cornus sanguinea</i>	E1	+			
<i>Euonymus europaea</i>	E1	+			
<i>Euonymus europaea</i>	E1	+			
<i>Viburnum opulus</i>	E1	+			
<i>Ligustrum vulgare</i>	E1	+			
<i>Lonicera nitida</i>	E1	+			
<i>Crataegus monogyna</i>	E1	+			
<i>Crataegus monogyna</i>	E1	+			
<i>Crataegus monogyna</i>	E1	+			
<i>Prunus spinosa</i>	E1	+			
<i>Rhamnus catharticus</i>	E1	+			
EA	Epilobietea angustifolii				
<i>Galeopsis speciosa</i>	E1	+			

		Number of relevé (Zaporedna številka popisa)	Fr.	Pr.
Stachys sylvatica	E1	1	2	17
Tussilago farfara	E1	.	.	4
Arctium nemorosum	E1	.	+	3
Eupatorium cannabinum	E1	.	.	13
Sambucus racemosa	E3a	.	.	8
Galeopsis pubescens	E1	.	.	2
Rubus idaeus	E2a	.	.	8
FB Festuco-Brometea, Trifolio-Geranietea	E1	.	.	1
TG Hucus mollis	E1	1	2	4
Brachypodium rupstre	E1	.	+	4
Ca Angelica sylvestris	E1	.	+	2
Caithion	E1	.	+	1
Angelica sylvestris	E1	.	+	4
Caithia palustris	E1	.	+	4
FP Filipendulo-Petasition	E1	.	+	2
Filipendula ulmaria	E1	.	+	58
Mosoton aquaticum	E1	.	+	17
FP Valeriana officinalis	E1	.	+	1
Mo Molinietalia caeruleae	E1	.	+	4
Cirsium oleraceum	E1	.	+	15
Cotulicum autumnale	E1	.	+	3
Valeriana dioica	E1	.	+	1
Euphorbia villosa	E1	.	+	1
PP Potentillo-Polygonetalia	E1	.	+	4
Ranunculus repens	E1	1	2	3
Barbara vulgaris	E1	.	+	4
MA Malino-Arrhenatheretea	E1	.	+	2
Deschampsia cespitosa	E1	.	+	8
Dactylis glomerata	E1	.	+	13
Taraxacum officinale	E1	.	+	63
Poa trivialis	E1	.	+	5
Galium mollugo	E1	.	+	21
Lysimachia nummularia	E1	.	+	8
Anthriscus sylvestris	E1	.	+	2
Pastinaca sativa	E1	.	+	8
Rumex acetosa	E1	.	+	1
Daucus carota	E1	.	+	1
Poa pratensis	E1	.	+	4
Ajuga reptans	E1	.	+	4
MuA Mulinetio-Aconitetea	E1	.	+	19
Chiropolytum hirsutum	E1	.	+	79
Venatrum album	E1	.	+	38
Senecio ovatus	E1	.	+	8
Aconitum lycoctonum	E1	.	+	33
Stellaria nemorum	E1	.	+	21
Sereno nemorensis	E1	.	+	5
AT Asplenietea trichomanis	E1	.	+	21
Asplenium trichomanes	E1	.	+	8
Asplenium ruta-muraria	E1	.	+	2
PM Phragmiti-Magnocaricetea	E1	.	+	4
Phalaris arundinacea	E1	.	+	17
Lyopus europaeus	E1	.	+	4
Carex elata	E1	.	+	1
Phragmites australis	E1	.	+	1
Glyceria notata	E1	.	+	4
Galium palustre	E1	.	+	1
Carex acuta	E1	.	+	4
Carex randalpina	E1	.	+	1

	Number of relevé (Zaporedna številka popisa)	FC	<i>Filipendulo-Convuletea</i>	GU	<i>Gilio-Urticetea</i>	SM	<i>Stellarietea mediae</i>	ML	
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 Pr. Fr.								
FC									
			<i>Calyptegia sepium</i>						
		E1	<i>Fallopia japonica</i>						
		E1	<i>Echinocystis lobata</i>						
		E1	<i>Rudbeckia laciniata</i>						
		E1	<i>Mentha longifolia</i>						
		E1	<i>Mentha sp.</i>						
AV			<i>Artemisia vulgaris</i>						
		E1	<i>Rumex obtusifolius</i>						
		E1	<i>Artemisia vulgaris</i>						
		E1	<i>Artemisia vulgaris</i>						
		E1	<i>Melilotus officinalis</i>						
		E1	<i>Silene latifolia subsp. alba</i>						
		E1	<i>Aegopodium podagraria</i>						
		E1	<i>Urtica dioica</i>						
		E1	<i>Petasites hybridus</i>						
		E1	<i>Alliaria petiolata</i>						
		E1	<i>Galium aparine</i>						
		E1	<i>Solidago gigantea</i>						
		E1	<i>Glechoma hederacea</i>						
		E1	<i>Helianthus tuberosus</i>						
		E1	<i>Parietaria officinalis</i>						
		E1	<i>Lamium maculatum</i>						
		E1	<i>Impatiens glandulifera</i>						
		E1	<i>Geum urbanum</i>						
		E1	<i>Chaerophyllum aureum</i>						
		E1	<i>Impatiens parviflora</i>						
		E1	<i>Stellaria neglecta</i>						
		E1	<i>Viola odorata</i>						
SM			<i>Stellarietea mediae</i>						
		E1	<i>Stellaria media</i>						
		E1	<i>Erigeron annuus</i>						
		E1	<i>Chelidonium majus</i>						
		E1	<i>Cardamine hirsuta</i>						
		E1	<i>Plantago major</i>						
		E1	<i>Bromus sterilis</i>						
		E1	Other species (Druge vrste)						
		E3a	<i>Ailanthus altissima</i>						
		E3b	<i>Robinia pseudoacacia</i>						
		E3a	<i>Robinia pseudoacacia</i>						
		E2b	<i>Robinia pseudoacacia</i>						
		E1	<i>Hydrangea macrophylla</i>						
		E2a	<i>Narcissus pseudonarcissus</i>						
		E1	<i>Veronica sp.</i>						
		E1	<i>Forsythia viridissima</i>						
		E2a	<i>Aquilegia vulgaris</i>						
		E1	<i>Prunus instititia</i>						
ML			Mosses (Mahovi)						
		E0	<i>Plagiomnium undulatum</i>						
		E0	<i>Mnium sp.</i>						
		E0	<i>Anomodon viticulosus</i>						
		E0	<i>Brachythecium sp.</i>						
		E0	<i>Neckera complanata</i>						

Table 4: Synoptic table communities of syntaxon *Salicetum albae* s. lat. in Slovenia, Austria and N-Italy
Preglednica 4: Sintezna tabela združb makroasociacije *Salicetum albae* s. lat. v Sloveniji, Avstriji in severni Italiji

		Successive number (Zaporedna številka)	1	2	3	4	5	6	7	8	9	10
		Number of relevés (Število popisov)	21	22	8	33	33	87	141	19	41	24
		Sign for syntaxa (Oznaka sintaksona)	LoSa - SI	LoSa - Vd	Sa-Drava	Sa-Mura	Sa-Krka	Sap-A	Sac-A	AfSapn	AfSabf	AfSahl
SA	<i>Salicion albae</i>											
	<i>Salix alba</i>	E3b	100	95	100	40	94	97	97	100	100	100
	<i>Salix alba</i>	E2b	5	0	25	6	24	2	8	.	.	.
	<i>Acer negundo</i>	E3a	14	95	13	12	.	.	.	11	12	8
	<i>Acer negundo</i>	E2b	24	95	50	9	3	.	.	.	.	.
	<i>Acer negundo</i>	E1	.	50	13	9	.	.	.	.	.	.
	<i>Solanum dulcamara</i>	E1	10	5	.	3	52	26	18	16	2	.
	<i>Populus nigra</i>	E3b	10	100	.	61	.	23	41	47	5	92
	<i>Populus nigra</i>	E2a	.	14	.	.	.	7	3	.	.	.
	<i>Salix fragilis</i>	E3b	.	27	63	12	.	17	26	.	.	.
	<i>Salix fragilis</i>	E2b	5	.	.	3	.	.	.	.	.	.
	<i>Vitis sylvestris</i>	E3a	.	32	.	.	.	.	.	.	.	.
	<i>Salix x rubens</i>	E3	.	.	.	.	3	.	.	.	.	.
	<i>Populus x canadensis</i>	E3	.	.	.	.	.	14	16	.	.	.
SP	<i>Salicetea purpureae</i>											
	<i>Salix eleagnos</i>	E3a	38	23	13	.	33	3	8	.	.	21
	<i>Salix purpurea</i>	E3a	5	5	25	.	.	.	.	.	.	.
	<i>Salix purpurea</i>	E2b	19	9	25	.	24	.	.	11	.	29
	<i>Salix viminalis</i>	E3a	.	5	.	.	3	.	.	.	.	.
	<i>Salix sp.</i>	E2	.	.	.	.	3	.	.	.	.	.
	<i>Salix triandra</i>	E2	.	.	.	.	30	16	14	.	5	50
	<i>Salix myrsinifolia</i>	E2	.	.	.	.	.	3	1	.	.	.
	<i>Salix viminalis</i>	E2	.	.	.	.	.	10	9	.	.	.
	<i>Salix daphnoides</i>	E2	.	.	.	.	.	.	4	.	.	.
	<i>Amorpha fruticosa</i>	E2	.	.	.	.	.	.	.	47	83	79
AI	<i>Alnion incanae</i>											
	<i>Rubus caesius</i>	E1	95	86	100	84	67	71	81	84	83	42
	<i>Equisetum arvense</i>	E1	62	32	13	9	6	24	21	26	17	54
	<i>Impatiens noli-tangere</i>	E1	52	.	.	6	9	13	52	.	.	.
	<i>Alnus incana</i>	E3a	52	.	38	.	3	8	26	.	.	.
	<i>Alnus incana</i>	E2a	24	.	.	.	.	5	21	.	.	.
	<i>Humulus lupulus</i>	E3a	14	.	50	.	.	.	.	.	.	.
	<i>Humulus lupulus</i>	E2b	57	55	25	9	48	25	45	89	24	4
	<i>Humulus lupulus</i>	E1	.	18	25	12	15	.	.	.	.	.
	<i>Chrysosplenium alternifolium</i>	E1	33	.	.	18	.	.	9	.	.	.
	<i>Cardamine impatiens</i>	E1	24	5	25	15	6	2	15	.	.	.
	<i>Festuca gigantea</i>	E1	24	5	.	27	9	3	36	5	.	.
	<i>Frangula alnus</i>	E2b	24	.	.	.	.	.	.	.	.	.
	<i>Hemerocallis fulva</i>	E1	19	.	.	.	.	.	.	.	.	.
	<i>Carex pendula</i>	E1	5	100	.	.	.	.	.	11	.	.
	<i>Equisetum telmateia</i>	E1	5	.	.	.	3	.	.	11	.	.
	<i>Circaea intermedia</i>	E1	5	.	.	.	.	.	.	.	.	.
	<i>Carex remota</i>	E1	.	5	25	27	.	.	.	.	.	.
	<i>Aesculus hippocastanum</i>	E3a	.	14	.	.	.	.	.	.	.	.
	<i>Aesculus hippocastanum</i>	E2b	.	5	.	.	.	.	.	.	.	.
	<i>Equisetum hyemale</i>	E1	.	.	13	.	.	.	.	.	.	.
	<i>Agropyron caninum</i>	E1	.	.	.	21	3	2	18	.	.	.
	<i>Populus alba</i>	E3b	.	.	.	6	.	6	8	11	.	4
	<i>Dryopteris carthusiana</i>	E1	.	.	.	3	.	.	.	.	.	.
	<i>Equisetum sylvaticum</i>	E1	.	.	.	.	24	.	.	.	10	.
AQr	<i>Alno-Quercion roboris</i>											
AG	<i>Alnus glutinosa</i>	E3b	29	50	38	55	.	1	8	5	.	17
AG	<i>Alnus glutinosa</i>	E2b	10	18	13	9	.	.	2	.	.	.
	<i>Ulmus laevis</i>	E3b	10	23	.	51	3	.	.	.	.	.
	<i>Ulmus laevis</i>	E2b	.	18	.	12	.	.	.	.	.	.
	<i>Ulmus laevis</i>	E1	.	9	.	12	.	.	.	.	.	.
	<i>Fraxinus angustifolia</i>	E3a	.	23	.	45	3	.	.	.	.	.
	<i>Fraxinus angustifolia</i>	E2a	.	23	.	9	.	.	.	.	.	.
	<i>Fraxinus angustifolia</i>	E1	.	14	38	18	.	.	.	.	.	.
	<i>Quercus robur</i>	E3b	.	9	.	.	.	.	.	.	.	.
	<i>Quercus robur</i>	E2a	.	5	.	.	.	.	.	.	.	.
	<i>Quercus robur</i>	E1	.	14	25	3	.	.	.	.	.	.
AG	<i>Ribes nigrum</i>	E2a	.	14	.	.	.	.	.	.	.	.
	<i>Prunus padus</i>	E3	.	.	13	36	.	.	.	.	.	.
	<i>Prunus padus</i>	E2	.	.	63	48	.	13	48	.	.	5
	<i>Prunus padus</i>	E1	.	.	25	24	.	.	.	.	.	.
	<i>Omphalodes scorpioides</i>	E1	.	.	.	30	.	.	.	.	.	.
	<i>Rumex sanguineus</i>	E1	.	.	.	15	.	.	.	.	.	.
	<i>Glechoma hirsuta</i>	E1	.	.	.	3	.	.	.	.	.	.
	<i>Carex brizoides</i>	E1	.	.	.	9	.	1	1	.	.	.
	<i>Myosotis sparsiflora</i>	E1	.	.	.	3	.	.	.	.	.	.

	Successive number (Zaporedna številka)	1	2	3	4	5	6	7	8	9	10
AG	<i>Salix cinerea</i>	E2b	.	.	.	9	1	1	.	.	.
	<i>Leucojum aestivum</i>	E1	.	.	.	3	.	.	.	.	.
TA	<i>Tilio-Acerion</i>										
	<i>Arum maculatum</i>	E1	52	9	.	79	.	.	.	.	.
	<i>Lunaria rediviva</i>	E1	52	14	.	.	3	.	.	.	.
	<i>Adoxa moschata</i>	E1	38	.	.	58	.	1	4	.	.
	<i>Acer pseudoplatanus</i>	E3a	10	9	.	.	.	.	1	.	.
	<i>Acer pseudoplatanus</i>	E2b	33	14	.	.	3	.	6	.	.
	<i>Acer pseudoplatanus</i>	E1	14	14	.	.	.	.	.	.	.
	<i>Juglans regia</i>	E3b	.	27	.	.	.	.	.	.	.
	<i>Juglans regia</i>	E2b	14	40	.	.	.	.	.	.	.
	<i>Juglans regia</i>	E1	.	18	.	.	.	.	.	.	.
	<i>Stellaria montana</i>	E1	14	.	25	.	.	.	.	.	.
	<i>Corydalis solida</i>	E1	10	.	.	30	.	.	.	.	.
	<i>Ulmus glabra</i>	E3b	5	.	.	.	.	.	.	.	.
	<i>Ulmus glabra</i>	E2b	10	.	.	.	.	.	.	.	.
	<i>Aruncus dioicus</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Geranium robertianum</i>	E1	5	.	.	.	.	.	7	.	.
	<i>Acer platanoides</i>	E2a	.	5	.	.	.	.	.	.	.
	<i>Acer platanoides</i>	E1	.	5	.	.	.	.	.	.	.
	<i>Dryopteris affinis</i>	E1	.	5	.	.	.	.	.	.	.
	<i>Tilia platyphyllos</i>	E1	.	5	.	.	.	.	.	.	.
EC	<i>Erythronio-Carpinion</i>										
	<i>Galanthus nivalis</i>	E1	67	64	.	33	.	.	.	.	.
	<i>Crocus vernus subsp. vernus</i>	E1	33	23	.	.	.	.	.	.	.
	<i>Ranunculus aconitifolius</i>	E1	24	.	.	.	.	.	.	.	.
	<i>Primula vulgaris</i>	E1	14	14	.	.	.	.	.	.	.
	<i>Helleborus odorus</i>	E1	10	32	.	.	.	.	.	.	.
	<i>Ornithogalum pyrenaicum</i>	E1	5	50	.	.	.	.	.	.	.
	<i>Lonicera caprifolium</i>	E2a	.	9	.	.	.	.	.	.	.
AF	<i>Arenonio-Fagion</i>										
	<i>Lamium orvala</i>	E1	71	100	.	.	3	.	.	.	.
	<i>Anemone trifolia</i>	E1	24	.	.	.	.	.	.	.	.
	<i>Isopyrum thalictroides</i>	E1	10	.	25	.	.	.	.	.	.
	<i>Knautia drymeia subsp. drymeia</i>	E1	10	.	.	.	.	.	.	.	.
	<i>Cardamine trifolia</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Cyclamen purpurascens</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Hacquetia epipactis</i>	E1	5	5	.	.	.	.	.	.	.
	<i>Helleborus niger subsp. niger</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Scopolia carniolica</i>	E1	5	.	.	.	.	.	.	.	.
FS	<i>Fagetalia sylvaticae</i>										
	<i>Sambucus nigra</i>	E3a	.	18	13	33	.	.	.	.	.
	<i>Sambucus nigra</i>	E2b	90	82	38	79	36	2	57	37	2
	<i>Sambucus nigra</i>	E1	.	5	13	15	24	.	.	.	.
	<i>Ranunculus lanuginosus</i>	E1	81	.	.	3	6	.	4	.	.
	<i>Brachypodium sylvaticum</i>	E1	67	95	88	18	9	1	20	32	2
	<i>Fraxinus excelsior</i>	E3a	57	9	.	.	.	5	18	.	.
	<i>Fraxinus excelsior</i>	E2a	29	18	.	.	.	7	24	.	.
	<i>Fraxinus excelsior</i>	E1	5	5	.	.	.	.	.	.	.
	<i>Allium ursinum</i>	E1	57	23	50	42	3	.	5	.	.
	<i>Leucojum vernum</i>	E1	57	.	.	48	.	.	.	.	.
	<i>Corydalis cava</i>	E1	33	9	.	24	.	.	.	.	.
	<i>Salvia glutinosa</i>	E1	33	9	.	.	.	1	8	.	.
	<i>Circaeaa lutetiana</i>	E1	29	73	100	36	42	8	21	.	.
	<i>Asarum europaeum subsp. caucasicum</i>	E1	29	5	.	.	.	.	.	.	.
	<i>Heracleum sphondylium</i>	E1	29	32	13	9	12	.	12	5	.
	<i>Paris quadrifolia</i>	E1	29	5	13	21	3	.	4	.	.
	<i>Symphytum tuberosum</i>	E1	29	55	38	15	.	.	4	.	.
	<i>Cardamine bulbifera</i>	E1	24	18	.	.	.	.	.	.	.
	<i>Galeobdolon montanum</i>	E1	14	27	13	58	.	.	12	.	.
	<i>Scrophularia nodosa</i>	E1	14	23	25	.	21	6	25	5	.
	<i>Campanula trachelium</i>	E1	10	5	.	.	3	.	.	.	.
	<i>Carpinus betulus</i>	E3a	10	9	.	.	.	.	.	.	.
	<i>Carpinus betulus</i>	E2b	10	5	.	.	3	.	.	.	.
	<i>Carpinus betulus</i>	E1	.	.	13	.	.	.	.	.	.
	<i>Galeobdolon flavidum</i>	E1	10	.	.	.	.	.	.	.	.
	<i>Polygonatum multiflorum</i>	E1	10	32	.	3	.	.	.	.	.
	<i>Tilia cordata</i>	E3b	10	.	.	.	.	.	.	.	.
	<i>Tilia cordata</i>	E2a	10	.	.	.	.	.	.	.	.
	<i>Viola reichenbachiana</i>	E1	10	41	.	15	.	.	.	.	.
	<i>Asarum europaeum subsp. europaeum</i>	E1	5	.	.	9	.	.	2	.	.
	<i>Dryopteris filix-mas</i>	E1	5	.	.	.	3	.	.	.	.
	<i>Euphorbia amygdaloides</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Fagus sylvatica</i>	E2a	5	.	.	.	.	.	.	.	.
	<i>Fagus sylvatica</i>	E1	5	.	13	.	.	.	.	.	.
	<i>Galium laevigatum</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Melica nutans</i>	E1	5	.	.	.	.	1	.	.	.
	<i>Mercurialis perennis</i>	E1	5	5	.	.	.	.	1	.	.

	Successive number (Zaporedna številka)	1	2	3	4	5	6	7	8	9	10
	<i>Pulmonaria officinalis</i>	E1	5	.	.	61	.	.	3	.	.
	<i>Myosotis sylvatica</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Carex sylvatica</i>	E1	.	23	.	24	.	.	.	.	.
	<i>Prunus avium</i>	E3a	.	5	.	.	.	.	.	.	.
	<i>Prunus avium</i>	E2b	.	.	.	.	3	.	.	.	.
	<i>Poa nemoralis</i>	E1	.	.	.	.	3	.	4	.	.
QP	<i>Quercetalia pubescenti-petraeae</i>										
	<i>Carex flacca</i>	E1	5	5	.	.	.	1	.	.	.
	<i>Ruscus aculeatus</i>	E1	.	41	.	.	.	.	.	.	.
	<i>Fraxinus ornus</i>	E2b	.	5	.	.	.	.	.	.	.
	<i>Tamus communis</i>	E1	.	.	.	.	.	.	11	.	13
QF	<i>Querco-Fagetea</i>										
	<i>Ranunculus ficaria</i>	E1	90	100	38	58	6	5	27	.	.
	<i>Corylus avellana</i>	E3a	19	27	.	.	.	.	.	.	.
	<i>Corylus avellana</i>	E2b	43	82	13	3	6	1	6	.	.
	<i>Corylus avellana</i>	E1	5	5	25	.	.	.	.	.	.
	<i>Hedera helix</i>	E3a	29	82	.	.	.	.	.	5	.
	<i>Hedera helix</i>	E2a	57	.	.	.	.	.	.	.	.
	<i>Hedera helix</i>	E1	.	86	38	6	9	.	.	.	.
	<i>Cerastium sylvaticum</i>	E1	62	5	13	3	.	.	.	.	.
	<i>Anemone nemorosa</i>	E1	43	41	.	9	.	.	.	.	.
	<i>Anemone ranunculoides</i>	E1	43	27	.	55	.	.	.	.	.
	<i>Listera ovata</i>	E1	38	.	.	3	.	.	1	.	.
	<i>Veratrum nigrum</i>	E1	29	.	.	.	.	.	.	.	.
	<i>Clematis vitalba</i>	E3a	5	14	13	.	.	2	21	21	.
	<i>Clematis vitalba</i>	E2a	19	5	.	.	.	.	.	.	.
	<i>Clematis vitalba</i>	E1	10	.	.	.	.	.	.	.	.
	<i>Acer campestre</i>	E3	14	64	.	.	.	.	.	.	.
	<i>Acer campestre</i>	E2b	29	86	13	3	.	.	.	.	.
	<i>Acer campestre</i>	E1	5	18	13	3	.	.	.	.	.
	<i>Malus sylvestris</i>	E3a	14	9	.	.	.	.	.	.	.
	<i>Malus sylvestris</i>	E2b	10	9	.	.	.	.	.	.	.
	<i>Dactylorhiza fuchsii</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Lonicera xylosteum</i>	E2a	5	.	.	.	.	.	12	.	.
	<i>Moehringia trinervia</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Viscum album subsp. album</i>	E3a	5	.	.	.	.	.	.	.	.
	<i>Lathraea squamaria</i>	E1	.	27	.	.	.	.	.	.	.
	<i>Scilla bifolia</i>	E1	.	14	.	15	.	.	.	.	.
	<i>Ulmus minor</i>	E3a	.	5	13	6	.	.	5	5	.
	<i>Ulmus minor</i>	E2a	.	14	.	3	.	.	.	.	.
	<i>Viola alba subsp. alba</i>	E1	.	9	.	.	.	.	.	.	.
	<i>Orobanche hederae</i>	E1	.	5	.	.	.	.	.	.	.
	<i>Gagea lutea</i>	E1	.	4	.	3	.	.	.	.	.
	<i>Stellaria holostea</i>	E1	.	.	13	.	.	.	.	.	.
VP	<i>Vaccinio-Piceeta, Erico-Pineta</i>										
	<i>Oxalis acetosella</i>	E1	10	.	.	.	3	.	.	.	.
	<i>Veronica urticifolia</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Picea abies</i>	E2	.	.	.	.	.	.	9	.	.
	<i>Carex alba</i>	E1	.	.	.	.	.	1	.	.	.
EA	<i>Epilobietea angustifolii</i>										
	<i>Galeopsis speciosa</i>	E1	29	5	.	9	55	.	.	2	.
	<i>Stachys sylvatica</i>	E1	19	9	.	48	.	2	31	.	.
	<i>Arctium nemorosum</i>	E1	10	5	.	.	.	.	.	.	.
	<i>Eupatorium cannabinum</i>	E1	10	9	.	.	12	1	11	32	.
	<i>Galeopsis pubescens</i>	E1	5	.	13	12	12	.	.	.	.
	<i>Sambucus racemosa</i>	E3a	10	.	.	.	.	.	.	.	.
	<i>Tussilago farfara</i>	E1	10	.	.	.	.	.	2	.	.
	<i>Arctium minus</i>	E1	.	14	.	.	.	.	.	.	.
	<i>Physalis alkekengi</i>	E1	.	5	.	.	.	.	.	.	.
	<i>Rubus idaeus</i>	E2	.	.	.	.	.	.	2	.	.
	<i>Fragaria vesca</i>	E1	.	.	.	.	.	.	1	.	.
	<i>Calamagrostis epigejos</i>	E1	.	.	.	.	.	.	3	.	.
RP	<i>Rhamno-Pruneta</i>										
	<i>Cornus sanguinea</i>	E2b	90	73	63	42	33	17	73	32	2
	<i>Cornus sanguinea</i>	E1	.	38	12	6	.	.	.	.	.
	<i>Euonymus europaea</i>	E2b	76	86	25	30	55	.	.	.	.
	<i>Euonymus europaea</i>	E1	10	5	13	21	36	3	18	.	.
	<i>Viburnum opulus</i>	E2b	33	64	13	12	12	15	12	11	.
	<i>Ligustrum vulgare</i>	E2a	33	36	.	6	.	.	.	.	.
	<i>Crataegus monogyna</i>	E3a	5	32	.	.	.	.	.	.	.
	<i>Crataegus monogyna</i>	E2b	19	55	.	6	6	.	.	11	.
	<i>Crataegus monogyna</i>	E1	5	.	.	.	9	.	.	.	.
	<i>Prunus spinosa</i>	E2b	10	5	.	.	6	.	.	.	.
	<i>Rhamnus catharticus</i>	E2b	5	9	.	.	21	.	.	.	.
	<i>Parthenocissus inserta</i>	E1	.	.	25	.	.	.	.	.	.
	<i>Crataegus leavigata</i>	E2	.	.	.	3	.	.	.	.	.
	<i>Rubus ulmifolius</i>	E2	.	.	.	.	.	.	11	.	13
	<i>Viburnum lantana</i>	E2	.	.	.	.	.	.	3	.	.

	Successive number (Zaporedna številka)	1	2	3	4	5	6	7	8	9	10
MuA	<i>Mulgedio-Aconitetea</i>										
	<i>Chaerophyllum hirsutum</i>	E1	81	.	13	.	12	.	14	.	.
	<i>Veratrum album</i>	E1	38	.	13	.	.	.	.	.	.
	<i>Senecio ovatus</i>	E1	21	.	.	.	.	6	.	.	.
	<i>Stellaria nemorum</i>	E1	24	.	.	9	.	.	23	.	.
	<i>Aconitum lycoctonum</i>	E1	10	.	.	.	.	.	.	.	.
	<i>Silene dioica</i>	E1	.	5	.	.	.	.	10	.	.
	<i>Athyrium filix-femina</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Primula elatior</i>	E1	.	.	.	.	.	3	4	.	.
FB	<i>Festuco-Brometea, Trifolio-Geranietea</i>										
	<i>Holcus mollis</i>	E1	10	.	.	.	.	.	.	.	.
	<i>Brachypodium rupestre</i>	E1	5	.	13	.	.	.	.	.	.
	<i>Euphorbia verrucosa</i>	E1	.	5	.	.	.	.	.	.	.
	<i>Hippocrepis comosa</i>	E1	.	5	.	.	.	.	.	.	.
	<i>Silene vulgaris</i>	E1	.	.	.	.	.	1	.	.	.
Ca	<i>Calthion</i>										
	<i>Angelica sylvestris</i>	E1	67	14	25	3	52	31	53	5	.
MC	<i>Cardamine amara</i>	E1	52	.	25	3	9	20	11	.	.
	<i>Caltha palustris</i>	E1	33	.	13	12	.	15	6	.	.
	<i>Scirpus sylvaticus</i>	E1	.	.	13	.	.	.	.	.	.
	<i>Myosotis scorpioides</i>	E1	.	.	13	.	3	46	14	.	4
Mo	<i>Molinietalia caeruleae</i>										
	<i>Cirsium oleraceum</i>	E1	71	.	25	3	.	5	35	.	.
	<i>Colchicum autumnale</i>	E1	14	9	.	9	.	.	.	.	.
	<i>Valeriana dioica</i>	E1	5	.	.	3	.	.	.	.	.
	<i>Euphorbia villosa</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Cardamine pratensis L.</i>	E1	.	.	.	12	3	.	.	.	.
	<i>Cirsium palustre</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Juncus effusus</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Selinum carvifolia</i>	E1	.	.	.	.	6	.	.	.	.
	<i>Succisella inflexa</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Equisetum palustre</i>	E1	.	.	.	.	.	5	3	.	.
FP	<i>Filipendulo-Petasition</i>										
	<i>Filipendula ulmaria</i>	E1	67	.	.	12	30	17	13	.	.
	<i>Myosoton aquaticum</i>	E1	19	5	.	.	18	10	20	5	5
	<i>Valeriana officinalis</i>	E1	5	.	50	.	.	8	12	.	.
	<i>Lysimachia vulgaris</i>	E1	.	14	38	.	27	25	4	16	.
	<i>Hypericum tetrapterum</i>	E1	.	.	25	.	.	.	.	.	.
	<i>Symphytum officinale</i>	E1	.	.	.	12	27	56	36	11	2
	<i>Stachys palustris</i>	E1	.	.	.	3	.	22	1	11	12
	<i>Lythrum salicaria</i>	E1	.	.	.	.	39	21	1	32	7
	<i>Mentha aquatica</i>	E1	.	.	.	.	12	13	3	.	15
PP	<i>Potentillo-Polygonetalia</i>										
	<i>Ranunculus repens</i>	E1	52	14	50	3	27	38	21	.	20
	<i>Barbarea vulgaris</i>	E1	10	23	63	.	6	5	1	.	.
	<i>Rumex crispus</i>	E1	.	27	25	.	3	.	.	.	.
	<i>Agrostis stolonifera</i>	E1	.	5	.	52	21	16	5	11	22
	<i>Duchesnea indica</i>	E1	.	5	.	24	.	.	.	.	.
	<i>Agropyron repens</i>	E1	.	.	.	.	3	.	.	.	.
MA	<i>Molinio-Arrhenatheretea</i>										
	<i>Deschampsia cespitosa</i>	E1	67	27	63	3	3	14	23	5	.
	<i>Dactylis glomerata s.str.</i>	E1	19	41	88	21	6	2	22	5	5
	<i>Taraxacum officinale</i>	E1	14	5	.	6	12	7	7	.	.
	<i>Anthriscus sylvestris</i>	E1	5	.	38	6	30	1	16	.	.
	<i>Poa trivialis</i>	E1	10	64	100	48	39	28	48	32	27
	<i>Galium mollugo</i>	E1	10	9	.	.	9	2	10	5	.
	<i>Ajuga reptans</i>	E1	5	9	.	3	3	.	3	.	.
	<i>Daucus carota</i>	E1	5	.	13	.	.	.	.	.	.
	<i>Lysimachia nummularia</i>	E1	5	.	38	15	18	40	11	.	5
	<i>Pastinaca sativa</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Poa pratensis</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Rumex acetosa</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Veronica serpyllifolia</i>	E1	.	9	.	.	.	.	.	.	.
	<i>Plantago lanceolata</i>	E1	.	5	.	.	3	.	.	.	.
	<i>Alopecurus pratensis</i>	E1	.	.	13	.	.	1	1	.	.
	<i>Festuca rubra</i>	E1	.	.	13	.	.	.	1	.	.
	<i>Veronica chamaedrys</i>	E1	.	.	13	3	9	.	.	.	.
	<i>Geranium phaeum</i>	E1	.	.	.	12	.	.	.	.	.
	<i>Achillea millefolium</i>	E1	.	.	.	.	6	1	1	.	.
	<i>Holcus lanatus</i>	E1	.	.	.	.	3	.	.	11	2
	<i>Phleum pratense</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Pimpinella major</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Prunella vulgaris</i>	E1	.	.	.	.	.	1	1	.	.
	<i>Festuca arundinacea</i>	E1	.	.	.	.	.	1	2	.	.
	<i>Trifolium repens</i>	E1	.	.	.	.	.	.	1	.	.
	<i>Trifolium pratense</i>	E1	.	.	.	.	.	.	1	.	.

	Successive number (Zaporedna številka)	1	2	3	4	5	6	7	8	9	10
PM	<i>Phragmiti-Magnocaricetea</i>										
	<i>Carex elata</i>	E1	19	.	25	9	.	.	.	.	.
	<i>Lycopus europaeus</i>	E1	19	5	.	6	18	11	11	49	17
	<i>Phalaris arundinacea</i>	E1	19	5	100	30	76	82	73	53	90
	<i>Galium palustre</i>	E1	5	.	.	21	37	4	16	12	.
	<i>Phragmites australis</i>	E1	5	.	.	6	3	32	16	16	5
	<i>Carex acuta</i>	E1	5	5	.	.	24	23	3	.	.
	<i>Carex randalpina</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Glyceria notata</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Iris pseudacorus</i>	E1	.	9	50	24	30	53	5	11	22
	<i>Carex acutiformis</i>	E1	.	.	25	9	.	18	6	21	20
	<i>Carex vesicaria</i>	E1	.	.	.	6	.	.	.	.	.
	<i>Rorippa amphibia</i>	E1	.	.	.	.	15	10	.	.	7
	<i>Veronica anagallis-aquatica</i>	E1	.	.	.	.	9	.	.	.	.
	<i>Carex appropinquata</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Carex vulpina</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Leersia oryzoides</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Scutellaria galericulata</i>	E1	.	.	.	.	3	8	.	.	.
	<i>Veronica beccabunga</i>	E1	.	.	.	.	3	6	1	.	.
	<i>Poa palustris</i>	E1	.	.	.	.	.	24	18	32	15
	<i>Scrophularia umbrosa</i>	E1	.	.	.	.	.	2	8	.	.
FC	<i>Filipendulo-Convolvuleta</i>										
	<i>Calystegia sepium</i>	E1	38	.	13	6	67	28	26	32	20
	<i>Fallopia japonica</i>	E1	19	.	38	.	.	.	.	.	.
	<i>Echinocystis lobata</i>	E1	14	.	25	.	61	.	.	.	.
	<i>Rudbeckia laciniata</i>	E1	14	.	13	15	27	.	.	.	.
	<i>Mentha longifolia</i>	E1	5	.	.	.	9	2	5	.	.
	<i>Saponaria officinalis</i>	E1	.	.	25	.	3	.	.	5	5
	<i>Epilobium hirsutum</i>	E1	.	.	.	.	9	.	.	5	8
	<i>Sicyos angulosus</i>	E1	.	.	.	.	.	.	.	5	93
BT	<i>Bidentetea tripartitetae</i>										
	<i>Polygonum sp.</i>	E1	.	.	13	.	6	.	.	.	.
	<i>Polygonum hydropiper</i>	E1	.	.	.	.	27	17	.	37	34
	<i>Polygonum mite</i>	E1	.	.	.	.	30	.	.	.	.
	<i>Bidens tripartita</i>	E1	.	.	.	.	18	.	.	.	.
	<i>Bidens frondosa</i>	E1	.	.	.	.	.	3	1	11	76
	<i>Polygonum dubia</i>	E1	.	.	.	.	.	.	.	.	46
	<i>Polygonum lapathifolia</i>	E1	.	.	.	.	.	.	.	.	10
	<i>Polygonum maculosa</i>	E1	.	.	.	.	.	.	.	.	12
	<i>Polygonum minus</i>	E1	.	.	.	.	.	.	.	.	2
AV	<i>Artemisieta vulgaris</i>										
	<i>Rumex obtusifolius</i>	E1	19	32	63	.	18	28	11	5	.
	<i>Artemisia vulgaris</i>	E1	10	18	.	.	33	2	14	5	29
	<i>Melilotus albus</i>	E1	5	.	.	.	.	.	1	.	17
	<i>Silene latifolia subsp. alba</i>	E1	5	.	.	3	9	.	.	.	.
	<i>Artemisia verlotiorum</i>	E1	.	5	.	.	.	.	.	21	17
	<i>Conium maculatum</i>	E1	.	.	25	.	.	.	.	.	.
GU	<i>Galio-Urticetea</i>										
	<i>Aegopodium podagraria</i>	E1	100	100	50	61	48	.	36	5	.
	<i>Urtica dioica</i>	E1	90	68	75	97	97	76	89	89	85
	<i>Alliaria petiolata</i>	E1	81	77	100	33	58	6	35	.	13
	<i>Galium aparine</i>	E1	76	32	75	94	70	33	63	53	7
	<i>Petasites hybridus</i>	E1	71	9	.	.	3	1	16	.	4
	<i>Solidago gigantea</i>	E1	62	9	50	24	9	8	25	79	41
	<i>Glechoma hederacea</i>	E1	57	36	13	45	79	15	46	5	63
	<i>Helianthus tuberosus</i>	E1	57	18	.	.	.	.	.	16	12
	<i>Parietaria officinalis</i>	E1	48	45	.	.	12	.	.	.	46
	<i>Impatiens glandulifera</i>	E1	29	14	100	91	24	6	28	.	.
	<i>Lamium maculatum</i>	E1	29	18	.	61	73	.	45	.	.
	<i>Geum urbanum</i>	E1	24	64	50	24	.	.	11	.	.
	<i>Chaerophyllum aureum</i>	E1	10	.	.	.	.	.	1	.	.
	<i>Impatiens parviflora</i>	E1	5	.	25	.	3	13	43	.	.
	<i>Stellaria neglecta</i>	E1	5	.	.	67	.	.	.	.	.
	<i>Viola odorata</i>	E1	.	5	.	.	.	.	.	.	.
	<i>Cuscuta europaea</i>	E1	.	.	.	.	12	.	.	.	.
	<i>Chaerophyllum temulum</i>	E1	.	.	.	.	9	.	.	.	.
	<i>Cruciata laevipes</i>	E1	.	.	.	.	6	.	.	.	.
	<i>Chaerophyllum bulbosum</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Solidago canadensis</i>	E1	.	.	.	.	.	6	16	.	.
SM	<i>Stellarietea mediae</i>										
	<i>Stellaria media</i>	E1	24	.	13	.	9	.	.	.	.
	<i>Erigeron annuus</i>	E1	19	5	13	.	24	.	.	20	21
	<i>Chelidonium majus</i>	E1	14	18	.	6	.	.	.	.	.
	<i>Cardamine hirsuta</i>	E1	10	14	.	.	.	.	.	.	.
	<i>Bromus sterilis</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Plantago major</i>	E1	5	5	.	.	.	.	.	.	12
	<i>Veronica sublobata</i>	E1	.	18	.	.	.	.	.	.	.
	<i>Allium vineale</i>	E1	.	9	.	.	.	.	.	.	.

	Successive number (Zaporedna številka)	1	2	3	4	5	6	7	8	9	10
	<i>Poa annua</i>	E1	.	5	.	.	.	.	.	.	.
	<i>Urtica urens</i>	E1	.	5	.	.	.	.	.	.	.
	<i>Veronica persica</i>	E1	.	5	38	.	.	.	.	.	.
	<i>Oxalis fontana</i>	E1	.	.	25	.	.	.	.	.	.
	<i>Polygonum persicaria</i>	E1	.	.	13	.	.	.	.	.	.
	<i>Veronica hederifolia</i>	E1	.	.	.	88	.	.	.	.	.
	<i>Rorippa sylvestris</i>	E1	.	.	.	.	15	5	1	.	12
	<i>Aristolochia clematitis</i>	E1	.	.	.	.	9	.	.	5	2
	<i>Echinochloa crus-galli</i>	E1	.	.	.	.	6	.	.	.	.
	<i>Cirsium arvense</i>	E1	.	.	.	.	3	6	10	.	.
	<i>Convolvulus arvensis</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Conyza canadensis</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Sonchus oleraceus</i>	E1	.	.	.	.	3	.	.	2	.
	<i>Galeopsis tetrahit</i>	E1	.	.	.	.	.	5	4	11	2
	<i>Xanthium orientale</i>	E1	.	.	.	.	.	.	.	5	22
	<i>Erigeron canadensis</i>	E1	.	.	.	.	.	.	.	32	50
AT	<i>Asplenietea trichomanis, Thlaspietea rotundifolii</i>										
	<i>Asplenium ruta-muraria</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Asplenium trichomanes</i>	E1	10	.	.	.	3	.	.	.	.
TR	<i>Equisetum ramosissimum</i>	E1	.	.	.	.	.	.	.	.	13
O	Other species (Druge vrste)										
	<i>Ailanthus glandulosa</i>	E3a	10	.	.	.	.	.	.	.	.
	<i>Robinia pseudoacacia</i>	E3b	10	50	.	33	3	.	.	11	5
	<i>Robinia pseudoacacia</i>	E2b	5	9	.	6	6	.	.	.	.
	<i>Robinia pseudoacacia</i>	E1	5	5	.	9	.	.	.	.	.
	<i>Aquilegia vulgaris</i>	E1	5	.	.	.	.	.	.	.	.
	<i>Forsythia viridissima</i>	E2a	5	.	.	.	.	.	.	.	.
	<i>Prunus insititia</i>	E3a	5	5	.	.	.	.	.	.	.
	<i>Prunus insititia</i>	E2a	.	32	.	.	.	.	.	.	.
	<i>Viola sororia</i>	E1	.	9	.	.	.	.	.	.	.
	<i>Vitis vinifera</i>	E3a	.	9	.	.	.	.	.	.	8
	<i>Iris foetidissima</i>	E1	.	5	.	.	.	.	.	.	.
	<i>Gleditsia triacanthos</i>	E3a	.	5	.	.	.	.	.	.	.
	<i>Iris germanica</i>	E1	.	5	.	.	.	.	.	.	.
	<i>Malus domestica</i>	E3a	.	5	.	.	.	.	.	.	.
	<i>Morus alba</i>	E3a	.	5	.	.	.	.	.	.	.
	<i>Platanus x hispanica</i>	E3b	.	5	.	.	.	.	.	.	.
	<i>Platanus x hispanica</i>	E2b	.	5	.	.	.	.	.	.	.
	<i>Bromus sp.</i>	E1	.	.	88	.	.	.	.	.	.
	<i>Hypericum sp.</i>	E1	.	.	25	.	.	.	.	.	.
	<i>Carex sp.</i>	E1	.	.	.	.	9	.	.	.	.
	<i>Mentha sp.</i>	E1	.	.	.	.	6	.	.	.	.
	<i>Mentha x verticillata</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Ranunculus aquatilis</i>	E1	.	.	.	.	3	.	.	.	.
	<i>Aster novi-belgii agg.</i>	E1	.	.	.	.	.	25	3	.	.
	<i>Apios americana</i>	E1	.	.	.	.	.	.	.	11	32
	<i>Humulus japonicus</i>	E1	.	.	.	.	.	.	.	.	34
	<i>Ditrichia viscosa</i>	E1	.	.	.	.	.	.	.	.	8
ML	Mosses and Fungi (Mahovi in lesne glive)										
	<i>Plagiomnium undulatum</i>	E0	29	18	25	3	.	3	7	.	.
	<i>Brachythecium sp.</i>	E0	5	.	.	.	.	.	.	.	.
	<i>Anomodon viticulosus</i>	E0	5	.	.	.	.	.	.	.	.
	<i>Mnium sp.</i>	E0	5	.	.	.	.	.	.	.	.
	<i>Neckera complanata</i>	E0	5	.	.	.	.	.	.	.	.
	<i>Laetiporus sulphureus</i>	E3a	.	5	.	.	.	.	.	.	.
	<i>Euryhynchium sp.</i>	E0	.	.	.	6	.	.	.	.	.

1 LoSa-Si *Lamio orvalae-Salicetum albae ranunculetosum lanuginosae*, Slovenia, this article2 LoSa-Vd *Lamio orvalae-Salicetum albae caricetosum pendulae*, Slovenia, Vipava Valley, this article3 Sa-Drava *Salicetum albae*, Slovenia, Drava Valley (Podravje), Javornik (2013, Appendix A, Phytosociological table, relevés 1–8)4 Sa-Mura, *Salicetum albae* Sloveni, Muria Valley, Čarni et al. (2008, Synoptic table of forest communities, column 2, compare also P. Košir et al. 2013, Table 1, relevés 1–30)5 Sa-Krka, *Salicetum albae*, Slovenia, Dolenjska, Šilc (2003, Table 4)6 Sap-A *Salicetum albae phalaridetosum*, Austria, Karner (2007, Table 2, column 3)7 Sac-A *Salicetum albae cornetosum*, Austria, Karner (2007, Table 2, column 4)8 Amorpho fruticosae-Salicetum albae var. *Populus nigra*, N-Italy, Poldini, Vidali & Ganis, (2011, Table 3, column 9)9 Amorpho fruticosae-Salicetum albae var. *Bidens frondosa*, N-Italy, Poldini, Vidali & Ganis, (2011, Table 3, column 11)10 Amorpho fruticosae-Salicetum albae var. *Humulus lupulus*, N-Italy, Poldini, Vidali & Ganis, (2011, Table 3, column 10)

Table 5: Groups of diagnostic species in communities of the syntaxon *Salicetum albae* s. lat.
Preglednica 5: Skupine diagnostičnih vrst v združbah makroasociacije *Salicetum albae* s. lat.

Successive number (Zaporedna številka)	1 21	2 22	3 8	4 33	5 33	6 87	7 141	8 19	9 41	10 24
Sign for syntaxa (Oznaka sintaksona)	LoSa -Sl	LoSa -Vd	Sa-Drava	Sa-Mura	Sa-Krka	Sap-A	Sac-A	AfSapn	AfSaf	AfSahl
<i>Salicion albae</i>	3	11	7	6	7	12	9	12	9	17
<i>Salicetea purpureae</i>	1	0	2	0	4	2	2	4	6	15
<i>Alnion incanae</i>	10	7	9	8	8	10	15	17	10	9
<i>Alno-Quercion roboris</i>	0	5	6	13	0	1	3	0	0	2
<i>Tilio-Acerion</i>	5	4	0	6	0	0	0	0	0	0
<i>Erythronio-Carpinion</i>	3	4	0	1	0	0	0	0	0	0
<i>Aremonio-Fagion</i>	3	2	0	0	0	0	0	0	0	0
<i>Fagetalia sylvaticae</i>	17	14	12	17	7	2	10	6	0	1
<i>Quercetalia pubescenti-petraeae</i>	0	1	0	0	0	0	0	0	0	1
<i>Querco-Fagetea</i>	12	16	5	6	0	0	3	2	0	1
<i>Vaccinio-Piceetea</i>	0	0	0	0	0	0	0	0	0	0
<i>Epilobietea angustifolii</i>	2	1	0	2	3	0	2	2	0	1
<i>Rhamno-Prunetea</i>	6	8	5	4	7	2	5	5	0	2
<i>Mulgedio-Aconitetea</i>	3	0	0	0	0	0	3	0	0	0
<i>Festuco-Brometea, Trifolio-Geranietea</i>	0	0	0	0	0	0	0	0	0	5
<i>Calthion</i>	4	0	2	0	3	7	4	0	0	0
<i>Molinietalia caeruleae</i>	2	0	0	0	0	0	2	0	0	0
<i>Filipendulo-Petasition</i>	2	0	3	0	6	11	4	5	3	3
<i>Potentillo-Polygonetalia</i>	1	2	4	3	2	4	1	0	3	2
<i>Molinio-Arrhenatheretea</i>	3	4	10	4	6	6	7	4	3	2
<i>Phragmiti-Magnocaricetea</i>	2	0	5	3	8	20	6	11	16	5
<i>Filipendulo-Convolvuletea</i>	2	0	3	0	7	2	1	3	9	2
<i>Bidentetea tripartitetae</i>	0	0	0	0	3	1	0	3	13	4
<i>Artemisieta vulgaris</i>	0	1	2	0	2	2	1	2	3	6
<i>Galio-Urticetea</i>	14	11	15	20	20	11	20	18	11	11
<i>Stellarietea mediae</i>	2	2	3	3	3	1	0	1	8	7
<i>Asplenietea trichomanis, Thlaspietea rotundifolii</i>	0	0	0	0	0	0	0	0	0	1
Other species (Druge vrste)	0	3	3	2	1	2	0	2	5	2
Mosses (Mahovi)	0	0	0	0	0	0	0	0	0	0
Total (Skupaj)	100	100	100	100	100	100	100	100	100	100

Table 6 (Preglednica 6): *Ornithogalo pyrenaici-Aceretum negundi* nom. prov.

Successive number (Zaporedna številka)				1	2		Successive number (Zaporedna številka)	1	2	Pr.	
Database number of relevé (Delovna številka popisa)		254575	259160				<i>Acer pseudoplatanus</i>	E3a	+	.	1
Elevation in m (Nadmorska višina v m)	56	56					<i>Fagellalia sylvaticae</i>	E1	+	1	2
Aspect (Legaj)	0	0					<i>Viola reichenbachiana</i>	E1	+	+	2
Slope in degrees (Nagib v stopinjah)	0	0					<i>Brachypodium sylvaticum</i>	E1	+	+	2
Parent material (Matična podlaga)	Al	Al					<i>Allium ursinum</i>	E1	+	.	1
Soil (Tla)	Fl	Fl					<i>Paris quadrifolia</i>	E3b	r	.	1
Stoniness in % (Kamnitost v %)	0	0					<i>Prunus avium</i>	E3a	.	1	1
Cover in % (Zastiranje v %):							<i>Carpinus betulus</i>	E2b	.	+	1
Upper tree layer (Zgornja drevesna plast)	E3b	90	80				<i>Carpinus betulus</i>	E1	.	+	1
Lower tree layer (Spodnja drevesna plast)	E3a	.	10				<i>Querco-Fagetea</i>				
Shrub layer (Grmovna plast)	E2	10	30				<i>Hedera helix</i>	E1	1	1	2
Herb layer (Zeliščna plast)	E1	50	60				<i>Corylus avellana</i>	E2a	+	.	1
Moss layer (Mahovna plast)	E0		1				<i>Acer campestre</i>	E3b	+	.	1
Maximum diameter of trees (Največji prsnji premer dreves)	cm	20	30				<i>Acer campestre</i>	E2b	1	1	2
Maximum height of trees (Največja drevesna višina)	m	16	18				<i>Acer campestre</i>	E1	+	1	2
Number of species (Število vrst)	43	32					<i>Clematis vitalba</i>	E3a	1	+	2
Relevé area (Velikost popisne ploskve)	m ²	400	400				<i>Clematis vitalba</i>	E1	+	.	1
Date of taking relevé (Datum popisa)				10/2/2014	Lijak	4/13/2015	<i>Malus sylvestris</i>	E2b	.	+	1
Locality (Nahajališče)							<i>Malus sylvestris</i>	E2a	+	.	1
Quadrant (Kvadrant)							<i>Scilla bifolia</i>	E1	1	.	1
Coordinate GK Y (D-48)	m	399685	399614	0048/3	Lijak	0048/3	<i>Anemone ranunculoides</i>	E1	+	.	1
Coordinate GK X (D-48)	m	5087065	5087193	399614	0048/3	Lijak	<i>Ulmus minor</i>	E2a	.	+	1
Diagnostic species of the association (Diagnostične vrste asociacije)							<i>Ranunculus ficaria</i>	E1	.	+	1
SP <i>Acer negundo</i>	E3b	5	4	2			<i>Malus sylvestris</i>	E3a	.	+	1
SP <i>Acer negundo</i>	E3a	.	2	1			<i>Listera ovata</i>	E1	.	+	1
SP <i>Acer negundo</i>	E2b	1	1	1			<i>Rhamno-Prunetea</i>				
QP <i>Ruscus aculeatus</i>	E1	+	+				<i>Crataegus monogyna</i>	E2a	+	+	2
EC <i>Ornithogalum pyrenaicum</i>	E1	1	.				<i>Euonymus europaea</i>	E3a	.	+	1
SA <i>Salicion albae</i>							<i>Euonymus europaea</i>	E2a	+	.	1
Populus nigra	E3b	r	1	1			<i>Ligustrum vulgare</i>	E2a	+	.	1
Salix alba	E3b	+	.	1			<i>Cornus sanguinea</i>	E2b	.	1	1
AQr <i>Alno-Quercion roboris</i>							<i>Calthion</i>				
Leucojum aestivum	E1	+	.	1			<i>Angelica sylvestris</i>	E1	+	.	1
Quercus robur	E3b	.	2	1			<i>Filipendulo-Petasition</i>	E1	.	+	1
Quercus robur	E2b	.	+	1			<i>Myosoton aquaticum</i>				
AI <i>Alnion incanae</i>							<i>Molinietalia caeruleae</i>				
Equisetum arvense	E1	1	1	2			<i>Colchicum autumnale</i>	E1	+	+	2
Rubus caesius	E1	+	+	2			<i>Iris sibirica</i>	E1	.	+	1
Carex pendula	E1	+	.	1			<i>Potentillo-Polygonetalia</i>				
Carex remota	E1	+	.	1			<i>Barbarea vulgaris</i>	E1	+	.	1
AG <i>Alnus glutinosa</i>	E3b	+	.	1			<i>Molinio-Arrhenatheretea</i>				
Frangula alnus	E2b	.	+	1			<i>Poa trivialis</i>	E1	2	1	2
EC <i>Erythronio-Carpinion</i>							<i>Ajuga reptans</i>	E1	+	.	1
Galanthus nivalis	E1	+	.	1			<i>Lysimachia nummularia</i>	E1	.	+	1
Ranunculus aescorinus	E1	.	+	1			<i>Mulgedio-Aconitetea</i>				
TA <i>Tilio-Acerion</i>							<i>Silene dioica</i>	E1	.	+	1
							<i>Galio-Urticetea</i>				
							<i>Aegopodium podagraria</i>	E1	3	3	2
							<i>Urtica dioica</i>	E1	+	.	1
							<i>Parietaria officinalis</i>	E1	+	.	1
							<i>Galium aparine</i>	E1	+	.	1
							<i>Geum urbanum</i>	E1	.	+	1
							<i>Glechoma hederacea</i>	E1	.	1	1
							<i>Bidentetea tripartitiae</i>				
							<i>Bidens frondosa</i>	E1	+	.	1
							<i>Stellarietea mediae</i>				
							<i>Allium vineale</i>	E1	+	.	1
							<i>Stellaria media</i>	E1	+	.	1
							<i>Other species (Druge vrste)</i>				
							<i>Robinia pseudoacacia</i>	E3b	.	+	1
							<i>Robinia pseudoacacia</i>	E1	+	.	1
							<i>Ficus carica</i>	E1	1	.	1
							<i>Mosses (Mahovi)</i>				
							<i>Plagiomnium undulatum</i>	E0	+	.	1

	Number of relevé (Zaporedina številka popisa)	Fr.	35	36	37	Pr.
<i>Salix alba</i>	1	2	3	4	5	6
<i>Acer negundo</i>	+	+	+	+	7	8
<i>Salix fragilis</i>	-	-	-	-	-	-
<i>Solanum dulcamara</i>	E3b	-	-	-	-	-
<i>Vitis sylvestris</i>	E1	-	-	-	-	-
<i>Salicetalia purpureae</i>	E3a	-	-	-	-	-
<i>Salix elegans</i>	E3b	-	-	-	-	-
EC	Erythronio-Carpinion					
<i>Primula vulgaris</i>	E1	-	-	-	-	-
<i>Lonicera caprifolium</i>	E2a	-	-	-	-	-
<i>Crocus vernus subsp. <i>vernus</i></i>	E1	-	-	-	-	-
<i>Helleborus odorus</i>	E1	-	-	-	-	-
<i>Erythronium dens-canis</i>	E1	-	-	-	-	-
AF	Arenonio-Fagion					
<i>Cyclamen purpurascens</i>	E1	-	-	-	-	-
<i>Cardamine eneopteroides</i>	E1	-	-	-	-	-
<i>Geranium nodosum</i>	E1	-	-	-	-	-
<i>Knautia drymeia subsp. <i>drymeia</i></i>	E1	-	-	-	-	-
<i>Cardamine trifolia</i>	E1	-	-	-	-	-
<i>Euphorbia carmelitana</i>	E1	-	-	-	-	-
<i>Tilio-Acerion</i>						
<i>Acer pseudoplatanus</i>	E3b	-	-	-	-	-
<i>Acer pseudoplatanus</i>	E3a	-	-	-	-	-
<i>Acer pseudoplatanus</i>	E2b	-	-	-	-	-
<i>Acer pseudoplatanus</i>	E2a	-	-	-	-	-
<i>Acer pseudoplatanus</i>	E1	-	-	-	-	-
<i>Acer pseudoplatanus</i>	E3b	-	-	-	-	-
<i>Acer pseudoplatanus</i>	E3a	-	-	-	-	-
<i>Juglans regia</i>	E1	-	-	-	-	-
<i>Juglans regia</i>	E2a	-	-	-	-	-
<i>Lunaria rediviva</i>	E1	-	-	-	-	-
<i>Ulmus glabra</i>	E3b	-	-	-	-	-
<i>Ulmus glabra</i>	E3a	-	-	-	-	-
<i>Ulmus glabra</i>	E2b	-	-	-	-	-
<i>Ulmus glabra</i>	E2a	-	-	-	-	-
<i>Ulmus glabra</i>	E1	-	-	-	-	-
<i>Tilia platyphyllos</i>	E3b	-	-	-	-	-
<i>Tilia platyphyllos</i>	E3a	-	-	-	-	-
<i>Tilia platyphyllos</i>	E2b	-	-	-	-	-
<i>Tilia platyphyllos</i>	E2a	-	-	-	-	-
<i>Aruncus dioicus</i>	E1	-	-	-	-	-
<i>Thalictrum aquilegiforme</i>	E1	-	-	-	-	-
<i>Geum urbanum</i>	E1	-	-	-	-	-
<i>Staphylea pinnata</i>	E2b	-	-	-	-	-
<i>Fragaria ananassa</i>	E2a	-	-	-	-	-
FS	Frageatia sylvaticaæ					
<i>Sympodium tuberosum</i>	E1	-	-	-	-	-
<i>Polygonatum multiflorum</i>	E1	-	-	-	-	-
<i>Viola reichenbachiana</i>	E1	-	-	-	-	-
<i>Pulmonaria officinalis</i>	E1	-	-	-	-	-
<i>Lilium martagon</i>	E1	-	-	-	-	-
<i>Cardamine bulbifera</i>	E1	-	-	-	-	-
<i>Brachypodium sylvaticum</i>	E3a	-	-	-	-	-
<i>Sambucus nigra</i>	E2b	-	-	-	-	-
<i>Sambucus nigra</i>	E2a	-	-	-	-	-
<i>Sambucus nigra</i>	E1	-	-	-	-	-
<i>Galeobdolon montanum</i>	E1	-	-	-	-	-
<i>Ascarum europaeum subsp. <i>caucasicum</i></i>	E1	-	-	-	-	-

Table 9: Synoptic table of syntaxa *Pseudostallario-Carpinetum*, *Pseudostellario-Quercetum roboris* and *Fraxino-Ulmetum effusae quercetosum roboris***Preglednica 9: Sintezna tabela sintaksonov *Pseudostallario-Carpinetum*, *Pseudostellario-Quercetum roboris* in *Fraxino-Ulmetum effusae quercetosum roboris***

		1 9	2 14	3 11	4 20
		PsCbla	PsCb	PeQrla	FUeqr
FpC	<i>Fraxino pannonicae-Carpinion</i>				
	<i>Fraxinus angustifolia</i>	E3b	78	.	9
	<i>Fraxinus angustifolia</i>	E3a	11	.	45
	<i>Fraxinus angustifolia</i>	E2a	56	7	18
	<i>Fraxinus angustifolia</i>	E1	33	.	40
	<i>Pseudostellaria europaea</i>	E1	44	93	36
	<i>Pulmonaria dacica</i>	E1	.	71	64
	<i>Gagea spathacea</i>	E1	.	57	.
AQr	<i>Alno-Quercion roboris</i>				
	<i>Leucojum aestivum</i>	E1	100	.	64
AG	<i>Alnus glutinosa</i>	E3b	89	36	100
AG	<i>Alnus glutinosa</i>	E3a	11	.	.
AG	<i>Alnus glutinosa</i>	E2b	22	7	100
AG	<i>Alnus glutinosa</i>	E2a	11	.	.
	<i>Quercus robur</i>	E3b	78	100	100
	<i>Quercus robur</i>	E2b	.	.	80
	<i>Quercus robur</i>	E1	22	79	64
	<i>Rumex sanguineus</i>	E1	11	7	25
AG	<i>Salix cinerea</i>	E2b	11	.	10
	<i>Clematis vitalba</i>	E1	11	.	.
	<i>Carex brizoides</i>	E1	.	36	73
	<i>Ulmus laevis</i>	E3b	.	4	.
	<i>Ulmus laevis</i>	E3a	.	.	10
	<i>Ulmus laevis</i>	E2	.	29	80
	<i>Ulmus laevis</i>	E1	.	.	80
AG	<i>Carex elongata</i>	E1	.	.	45
	<i>Prunus padus</i>	E3	.	.	100
	<i>Prunus padus</i>	E2	.	.	35
	<i>Prunus padus</i>	E1	.	.	65
	<i>Omphalodes scorpioides</i>	E1	.	.	35
	<i>Myosotis sparsiflora</i>	E1	.	.	50
AI	<i>Alnion incanae</i>				
	<i>Carex remota</i>	E1	100	57	82
	<i>Carex pendula</i>	E1	78	21	9
	<i>Rubus caesius</i>	E1	22	14	82
	<i>Dryopteris carthusiana</i>	E1	11	29	90
	<i>Equisetum arvense</i>	E1	11	7	15
	<i>Impatiens noli-tangere</i>	E1	.	43	20
	<i>Equisetum telmateia</i>	E1	.	21	10
	<i>Chrysosplenium alternifolium</i>	E1	.	14	.
	<i>Knautia drymeia subsp. intermedia</i>	E1	.	14	5
	<i>Frangula alnus</i>	E2	.	7	.
	<i>Cardamine impatiens</i>	E1	.	.	55
	<i>Festuca gigantea</i>	E1	.	.	85
	<i>Humulus lupulus</i>	E2a	.	.	5
	<i>Populus alba</i>	E3b	.	.	25
	<i>Populus alba</i>	E1	.	.	15
SP	<i>Salicetea purpureae</i>				
	<i>Salix alba</i>	E3b	33	.	5
	<i>Salix fragilis</i>	E3b	11	.	.
	<i>Solanum dulcamara</i>	E1	.	.	55
	<i>Acer negundo</i>	E3a	.	.	.
	<i>Acer negundo</i>	E2b	.	.	10
	<i>Acer negundo</i>	E1	.	.	5
	<i>Populus nigra</i>	E3b	.	.	10
TA	<i>Tilio-Acerion</i>				
	<i>Arum maculatum</i>	E1	56	21	.
	<i>Staphylea pinnata</i>	E2b	11	.	100
	<i>Staphylea pinnata</i>	E2a	11	.	.
	<i>Adoxa moschatellina</i>	E1	.	.	80
	<i>Corydalis solida</i>	E1	.	.	60
	<i>Geranium robertianum</i>	E1	.	.	10
	<i>Ulmus glabra</i>	E3b	.	.	5
	<i>Acer platanoides</i>	E3b	.	.	5
	<i>Acer platanoides</i>	E2a	.	.	5
EC	<i>Erythronio-Carpinion</i>				
	<i>Ranunculus esontinus</i>	E1	100	.	.
	<i>Erythronium dens-canis</i>	E1	56	.	.
	<i>Crocus vernus subsp. vernus</i>	E1	44	57	.
	<i>Ornithogalum pyrenaicum</i>	E1	33	.	10

	Successive number (Zaporedna številka)	1	2	3	4
	<i>Galanthus nivalis</i>	E1	22	.	.
	<i>Primula vulgaris</i>	E1	22	.	.
	<i>Helleborus odorus</i>	E1	11	.	5
	<i>Lonicera caprifolium</i>	E2a	11	.	10
	<i>Epimedium alpinum</i>	E1	.	7	.
AF	<i>Arenonio-Fagion</i>				
	<i>Lamium orvala</i>	E1	89	.	.
	<i>Cardamine trifolia</i>	E1	11	14	.
	<i>Hacquetia epipactis</i>	E1	.	14	.
	<i>Isopyrum thalictroides</i>	E1	.	7	.
	<i>Knautia drymeia</i>	E1	.	.	5
FS	<i>Fagetalia sylvaticae</i>				
	<i>Allium ursinum</i>	E1	100	.	30
	<i>Carpinus betulus</i>	E3b	56	86	64
	<i>Carpinus betulus</i>	E3a	100	86	70
	<i>Carpinus betulus</i>	E2b	44	64	55
	<i>Carpinus betulus</i>	E1	33	57	40
	<i>Galeobdolon montanum</i>	E1	67	71	18
	<i>Paris quadrifolia</i>	E1	67	80	27
	<i>Symphytum tuberosum</i>	E1	67	57	.
	<i>Viola reichenbachiana</i>	E1	67	7	25
	<i>Polygonatum multiflorum</i>	E1	56	100	18
	<i>Carex sylvatica</i>	E1	33	57	18
	<i>Lilium martagon</i>	E1	33	.	.
	<i>Mercurialis perennis</i>	E1	33	14	.
	<i>Pulmonaria officinalis</i>	E1	33	36	.
	<i>Cardamine bulbifera</i>	E1	11	50	5
	<i>Sambucus nigra</i>	E3a	.	.	5
	<i>Sambucus nigra</i>	E2a	11	7	75
	<i>Euphorbia dulcis</i>	E1	.	57	25
	<i>Leucojum vernum</i>	E1	.	36	45
	<i>Circaeæ lutetiana</i>	E1	.	29	55
	<i>Daphne mezereum</i>	E2a	.	29	95
	<i>Scrophularia nodosa</i>	E1	.	29	27
	<i>Gallium odoratum</i>	E1	.	29	40
	<i>Asarum europaeum subsp. <i>europaeum</i></i>	E1	.	21	.
	<i>Brachypodium sylvaticum</i>	E1	.	14	.
	<i>Fraxinus excelsior</i>	E3b	.	14	.
	<i>Dryopteris filix-mas</i>	E1	.	7	.
	<i>Prunus avium</i>	E2b	.	.	43
	<i>Tilia cordata</i>	E2b	.	.	100
	<i>Galeobdolon flavidum</i>	E1	.	.	65
	<i>Heracleum sphondylium</i>	E1	.	.	45
	<i>Corydalis cava</i>	E1	.	.	25
	<i>Salvia glutinosa</i>	E1	.	.	.
	<i>Melica nutans</i>	E1	.	.	15
	<i>Ranunculus lanuginosus</i>	E1	.	.	5
QF	<i>Querco-Fagetea</i>				
	<i>Anemone nemorosa</i>	E1	89	86	36
	<i>Ranunculus ficaria</i>	E1	89	50	27
	<i>Hedera helix</i>	E3a	44	.	.
	<i>Hedera helix</i>	E1	67	14	10
	<i>Corylus avellana</i>	E3a	11	.	10
	<i>Corylus avellana</i>	E2b	66	93	91
	<i>Corylus avellana</i>	E1	.	.	10
	<i>Acer campestre</i>	E3	22	43	9
	<i>Acer campestre</i>	E2b	56	64	27
	<i>Acer campestre</i>	E1	56	7	15
	<i>Ruscus aculeatus</i>	E1	56	.	.
	<i>Ulmus minor</i>	E3b	44	.	.
	<i>Ulmus minor</i>	E3a	67	.	27
	<i>Ulmus minor</i>	E2b	67	.	.
	<i>Ulmus minor</i>	E2a	100	.	18
	<i>Ulmus minor</i>	E1	.	.	5
	<i>Vinca minor</i>	E1	44	.	5
	<i>Anemone ranunculoides</i>	E1	33	7	.
	<i>Carex pilosa</i>	E1	22	7	.
	<i>Listera ovata</i>	E1	22	.	35
	<i>Malus sylvestris</i>	E3a	11	.	.
	<i>Scilla bifolia</i>	E1	11	7	.
	<i>Cerastium sylvaticum</i>	E1	.	14	18
	<i>Clematis vitalba</i>	E2	.	.	25
	<i>Rubus hirtus</i>	E2a	.	36	10
	<i>Viola riviniana</i>	E1	.	21	.
	<i>Moehringia trinervia</i>	E1	.	14	.
	<i>Pyrus pyraster</i>	E3b	.	14	.
	<i>Pyrus pyraster</i>	E2b	.	.	18
	<i>Pteridium aquilinum</i>	E1	.	14	.

	Successive number (Zaporedna številka)	1	2	3	4
	<i>Galium sylvaticum</i>	E1	.	7	.
	<i>Stellaria holostea</i>	E1	.	7	.
	<i>Campanula persicifolia</i>	E1	.	7	15
	<i>Ranunculus auricomus</i>	E1	.	.	36
	<i>Gagea lutea</i>	E1	.	.	40
	<i>Cruciata glabra</i>	E1	.	.	10
	<i>Veronica officinalis</i>	E1	.	.	5
VP	Vaccinio-Piceetea				
	<i>Oxalis acetosella</i>	E1	.	50	9
	<i>Gentiana asclepiadea</i>	E1	.	36	.
	<i>Luzula pilosa</i>	E1	.	36	.
	<i>Aposeris foetida</i>	E1	.	14	.
	<i>Maianthemum bifolium</i>	E1	.	7	5
	<i>Abies alba</i>	E2	.	7	.
RP	Rhamno-Prunetea				
	<i>Crataegus laevigata</i>	E2b	89	50	91
	<i>Euonymus europaea</i>	E2a	56	36	55
	<i>Viburnum opulus</i>	E2a	56	50	82
	<i>Ligustrum vulgare</i>	E2b	33	14	45
	<i>Crataegus monogyna</i>	E3a	.	.	5
	<i>Crataegus monogyna</i>	E2b	22	.	18
	<i>Cornus sanguinea</i>	E3a	.	.	5
	<i>Cornus sanguinea</i>	E2b	11	36	18
	<i>Viburnum lantana</i>	E2b	.	7	.
	<i>Prunus spinosa</i>	E2b	.	.	18
	<i>Berberis vulgaris</i>	E2a	.	9	.
EA	Epilobietea angustifolii				
	<i>Fragaria vesca</i>	E1	.	14	.
	<i>Stachys sylvatica</i>	E1	.	7	64
	<i>Galeopsis pubescens</i>	E1	.	.	30
	<i>Galeopsis speciosa</i>	E1	.	.	30
	<i>Carex divulsa</i>	E1	.	.	5
MuA	Mulgedio-Aconitea				
	<i>Athyrium filix-femina</i>	E1	11	86	73
	<i>Milium effusum</i>	E1	.	29	.
	<i>Stellaria nemorum</i>	E1	.	14	.
	<i>Doronicum austriacum</i>	E1	.	7	9
	<i>Veratrum album s. lat.</i>	E1	.	.	36
	<i>Senecio nemorensis</i>	E1	.	.	5
Ca	Calthion				
	<i>Caltha palustris</i>	E1	56	21	91
MC	<i>Cardamine amara</i>	E1	22	.	9
	<i>Angelica sylvestris</i>	E1	11	21	27
	<i>Myosotis scorpioides</i>	E1	11	29	100
	<i>Crepis paludosa</i>	E1	.	21	73
	<i>Scirpus sylvaticus</i>	E1	.	7	.
Mo	Molinietalia caeruleae				
	<i>Colchicum autumnale</i>	E1	56	.	55
	<i>Valeriana dioica</i>	E1	33	29	91
	<i>Cardamine pratensis</i>	E1	11	50	18
	<i>Galium uliginosum</i>	E1	.	14	.
CD	<i>Orchis palustris</i>	E1	.	7	.
	<i>Equisetum palustre</i>	E1	.	7	.
	<i>Fritillaria meleagris</i>	E1	.	7	.
	<i>Juncus effusus</i>	E1	.	7	82
	<i>Viola uliginosa</i>	E1	.	.	27
CD	<i>Dactylorhiza maculata</i>	E1	.	.	9
	<i>Cirsium oleraceum</i>	E1	.	.	9
	<i>Juncus conglomeratus</i>	E1	.	.	5
	<i>Selinum carvifolia</i>	E1	.	.	10
FP	Filipendulo-Petasition				
	<i>Filipendula ulmaria</i>	E1	22	7	64
	<i>Mentha aquatica</i>	E1	11	.	.
	<i>Lysimachia vulgaris</i>	E1	.	.	45
	<i>Hypericum tetrapetalum</i>	E1	.	.	9
	<i>Stachys palustris</i>	E1	.	.	9
PP	Potentillo-Polygonetalia				
	<i>Ranunculus repens</i>	E1	11	29	.
	<i>Rumex conglomeratus</i>	E1	.	.	18
	<i>Agrostis stolonifera</i>	E1	.	.	5
	<i>Duchesnea indica</i>	E1	.	.	5
MA	Molinio-Arrhenetheretea				
	<i>Ajuga reptans</i>	E1	56	71	36
	<i>Deschampsia cespitosa</i>	E1	33	29	9
	<i>Lysimachia nummularia</i>	E1	11	14	55
	<i>Veronica chamaedrys</i>	E1	.	29	.
	<i>Prunella vulgaris</i>	E1	.	7	.
	<i>Veronica serpyllifolia</i>	E1	.	7	.
	<i>Lychnis flos-cuculi</i>	E1	.	7	27
	<i>Anthriscus sylvestris</i>	E1	.	.	9
					15

	Successive number (Zaporedna številka)	1	2	3	4	
	<i>Poa trivialis</i>	E1	.	.	.	40
	<i>Ornithogalum umbellatum</i>	E1	.	.	.	35
	<i>Taraxacum officinale</i>	E1	.	.	.	15
	<i>Dactylis glomerata</i>	E1	.	.	.	10
	<i>Rumex acetosa</i>	E1	.	.	.	10
TG	<i>Trifolio-Geranietea</i>					
	<i>Vincetoxicum hirundinaria</i>	E1		7	.	.
	<i>Viola hirta</i>	E1	.	.	.	55
PM	<i>Phragmiti-Magnocaricetea</i>					
	<i>Carex elata</i>	E1	22	.	27	.
	<i>Carex otrubae</i>	E1	11	.	.	.
	<i>Galium palustre</i>	E1	11	.	27	.
	<i>Iris pseudacorus</i>	E1	11	7	82	.
	<i>Lycopus europaeus</i>	E1	11	7	73	.
	<i>Carex riparia</i>	E1	.	14	9	.
	<i>Peucedanum palustre</i>	E1	.	.	100	5
	<i>Carex vesicaria</i>	E1	.	.	73	15
	<i>Galium elongatum</i>	E1	.	.	36	.
	<i>Allisma plantago-aquatica</i>	E1	.	.	18	.
	<i>Carex acutiformis</i>	E1	.	.	18	15
	<i>Phalaris arundinacea</i>	E1	.	.	9	.
	<i>Leersia oryzoides</i>	E1	.	.	.	5
FC	<i>Filipendulo-Convolvuletea</i>					
	<i>Rudbeckia laciniata</i>	E1	.	.	.	50
	<i>Calystegia sepium</i>	E1	.	.	.	15
GU	<i>Galio-Urticetea</i>					
	<i>Aegopodium podagraria</i>	E1	33	57	9	85
	<i>Glechoma hederacea</i>	E1	22	71	36	10
	<i>Urtica dioica</i>	E1	11	7	.	70
	<i>Geum urbanum</i>	E1	.	21	18	85
	<i>Lamium maculatum</i>	E1	.	21	9	45
	<i>Alliaria petiolata</i>	E1	.	7	.	45
	<i>Impatiens parviflora</i>	E1	.	7	.	.
	<i>Galium aparine</i>	E1	.	.	9	95
	<i>Stellaria neglecta</i>	E1	.	.	.	80
	<i>Solidago gigantea</i>	E1	.	.	.	60
	<i>Impatiens glandulifera</i>	E1	.	.	.	45
	<i>Silene latifolia subsp. alba</i>	E1	.	.	.	20
	<i>Chærophyllum aureum</i>	E1	.	.	.	10
SM	<i>Stellarietea mediae</i>					
	<i>Ranunculus arvensis</i>	E1	.	36	.	.
	<i>Galeopsis tetrahit</i>	E1	.	14	.	.
	<i>Polygonum persicaria</i>	E1	.	14	.	.
	<i>Convolvulus arvensis</i>	E1	.	7	.	.
	<i>Cardamine hirsuta</i>	E1	.	.	9	.
	<i>Veronica hederifolia</i>	E1	.	.	.	80
	<i>Erigeron annuus</i>	E1	.	.	.	35
	<i>Aristolochia clematitis</i>	E1	.	.	.	15
	<i>Chelidonium majus</i>	E1	.	.	.	5
	<i>Lapsana communis</i>	E1	.	.	.	5
O	Other species (Druge vrste)					
	<i>Spiraea japonica</i>	E2a	33	.	.	.
	<i>Prunus insititia</i>	E2a	33	.	.	.
	<i>Quercus rubra</i>	E3b	11	.	.	.
	<i>Robinia pseudoacacia</i>	E3b	11	.	.	75
	<i>Robinia pseudoacacia</i>	E2b	.	.	.	15
	<i>Robinia pseudoacacia</i>	E1	.	.	.	5
	<i>Mentha sp.</i>	E1	.	.	18	.
	<i>Polygonum amphibium</i>	E1	.	.	9	.
Ml	Mosses (Mahovi)					
	<i>Plagiomnium undulatum</i>	E0	22	50	100	15
	<i>Atrichum undulatum</i>	E0	.	7	.	.
	<i>Euchynodium striatum</i>	E0	.	7	18	.
	<i>Polytrichum formosum</i>	E0	.	7	27	.
	<i>Mnium seligeri</i>	E0	.	.	18	.
	<i>Cirriphyllum piliferum</i>	E0	.	.	27	.
	<i>Homaliodia trichomanoides</i>	E0	.	.	27	.
	<i>Rhyzomnium punctatum</i>	E0	.	.	27	.
	<i>Brachythecium rutabulum</i>	E0	.	.	36	.
	<i>Plagiomnium affine</i>	E0	.	.	55	.
	<i>Plagiothecium sylvaticum</i>	E0	.	.	55	.
	<i>Hypnum cypresiforme</i>	E0	.	.	73	.
	<i>Plagiomnium cuspidatum</i>	E0	.	.	73	.
	<i>Calliergonella cuspidata</i>	E0	.	.	100	.

PsCbla *Pseudostellario-Carpinetum betuli leucojetosum aestivi*, Lijak, this article, Table 7, relevés 1–9PsCb *Pseudostellario-Carpinetum betuli*, Krakovski gozd, Accetto (1973, 1974)PsQrla *Pseudostellario-Quercetum roboris leucojetosum aestivi*, Southeastern Slovenia, Accetto (1995, Table 2)FuEqr *Fraxino-Ulmetum effusae quercetosum roboris*, the Mura region (Pomurje), P. Košir et al. (2013, Table 1, relevés 39–58).

Table 10: Groups of diagnostic species in the syntaxa *Pseudostallario-Carpinetum*, *Pseudostellario-Quercetum roboris* and *Fraxino-Ulmetum effusae querchetosum roboris*
Preglednica 10: Skupine diagnostičnih vrst v sintaksonih *Pseudostallario-Carpinetum*, *Pseudostellario-Quercetum roboris* in *Fraxino-Ulmetum effusae querchetosum roboris*

Successive number (Zaporedna številka)	1	2	3	4
Number of relevés (Število popisov)	9	14	11	20
Sign for syntaxa (Oznaka sintaksona)	PsCbla	PsCb	PeQrla	FUeqr
<i>Fraxino pannonicae-Carpinion</i>	5,6	6,3	3,3	3,8
<i>Alno-Quercion roboris</i>	9	8,2	17,2	11,5
<i>Alnion incanae</i>	5,6	6,2	9,9	5,8
<i>Salicetea purpureae</i>	1,1	0	1,4	0,7
<i>Tilo-Acerion</i>	2,0	0,6	0	5,5
<i>Erythronio-Carpinion</i>	7,6	1,8	0,2	0,6
<i>Aremonio-Fagion</i>	2,3	0,1	0	0,1
<i>Fagetalia sylvaticae</i>	20,6	28,5	9,8	23,3
<i>Querco-Fagetea</i>	25	14,1	8,2	10,4
<i>Vaccinio-Piceetea</i>	0	4,1	0,2	0,3
<i>Rhamno-Prunetea</i>	6,8	5,3	8,7	5,3
<i>Epilobietea angustifolii</i>	0	0,6	1,7	2,8
<i>Mulgedio-Aconitetea</i>	0,3	3,7	3,0	0,6
<i>Calthion</i>	2,5	2,7	7,7	0,1
<i>Molinietalia caeruleae</i>	2,5	3,3	6,3	1,5
<i>Filipendulo-Petasition</i>	0,8	0,2	3,3	0,4
<i>Poltentillo-Polygonetalia</i>	0,6	0,8	0,5	0,2
<i>Molinio-Arrhenetheretea</i>	2,3	4,5	3,5	5,4
<i>Trifolio-Geranietea</i>	0	0,2	0	1,1
<i>Phragmiti-Magnocaricetea</i>	1,7	0,8	12,2	0,8
<i>Filipendulo-Convolvuleta</i>	0	0	0	1,3
<i>Galio-Urticetea</i>	1,7	5,2	2,1	13,5
<i>Stellarieteae mediae</i>	0	2,0	0,2	2,9
Other species (Druge vrste)	2,2	0	0,7	2,0
Total (Skupaj)	100,0	100	100	100

PsCbla *Pseudostellario-Carpinetum betuli leucojetosum aestivi*, Lijak, this article, Table 7, relevés 1–9

PsCb *Pseudostellario-Carpinetum betuli*, Krakovski gozd, Accetto (1973, 1974)

PsQrla *Pseudostellario-Quercetum roboris leucojetosum aestivi*, Southeastern Slovenia, Accetto (1995, Table 2)

FUeqr *Fraxino-Ulmetum effusae querchetosum roboris*, the Mura region (Pomurje), P. Košir et al. (2013, Table 1, relevés 39–58).