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RAZPRAVE / ESSAYS

NOTULA

COMMUNICATING THE VALUE OF NATURE'S SERVICES TODAY FOR TOMORROW

KOMUNICIRANJE VREDNOSTI STORITEV NARAVNEGA OKOLJA DANES ZA JUTRI

Tjaša BALOH[1]*, Boris RANTAŠA[1]

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ABSTRACT

Communicating the value of nature services today for tomorrow

To ensure appreciation of forest related nature's services, they must be presented to the public in an appropriate way. Humans are usually not willing to pay for something they consider as 'free goods'. The challenge is changing the mind-set through awareness-raising. A good communication strategy should convey the message as a tangible concern that contributes to the quality of our lives. Communicating nature's services will help understand the benefits we gain and joy and pleasure they can give us if we treat them with knowledge, respect and wisdom.

The actions taken in the past are not giving the results we need. A multi-stakeholder approach can harness the creativity from stakeholders through solution driven dialogue.

In the LIFEGENMON project (Life for Forest Genetic Monitoring System) coordinated by Slovenian Forestry Institute, the multi-stakeholder approach is used to communicate the forest related nature's services and importance of genetic resources. A clear visual and verbal communication brings the key project messages to life. To forge meaningful connections with core stakeholders it is essential to use compelling and targeted messages. Ultimately, the results will demonstrate the value of engaging supporters in co-creating communications to extend reach and impact.

Keywords: nature's services, communicating, forests, society, forest values, multi-stakeholder approach

IZVLEČEK

Komuniciranje vrednosti storitev naravnega okolja danes za jutri

Za uspešno ozaveščanje javnosti o vrednosti storitev, ki jih zagotavlja naravno okolje, morajo te biti predstavljene na ustrezen način. Ljudje običajno niso pripravljeni plačati za storitve, ki so do zdaj veljale za proste (brezplačne). Spreminjanje načina razmišljanja s pomočjo ozaveščanja je torej velik izziv. Dobra komunikacijska strategija mora posredovati sporočilo o prispevku naravnega okolja h kakovosti človeškega življenja in bivanja. Ozaveščanje in širjenje znanja o storitvah, ki jih nudi naravno okolje, nam pomaga razumeti vrednost teh storitev in veselje ter zadovoljstvo, ki nam jih ponuja okolje danes in nam jih bo tudi v prihodnosti, če ga bomo obravnavali z znanjem, spoštovanjem in modrostjo.

Ukrepi, sprejeti v preteklosti, niso dali zadovoljivih rezultatov. Z aktivnim vključevanjem deležnikov preko usmerjenega dialoga lahko pridobimo ključne informacije in kreativne rešitve, ki jih nato vključimo v komunikacijsko strategijo.

Projekt LIFEGENMON, ki ga vodi Gozdarski inštitut Slovenije, v svojo komunikacijsko in diseminacijsko strategijo vključuje splošne in ciljne skupine deležnikov, s katerimi komunicira o vrednosti storitev, ki jih nudijo gozdovi. S pomočjo jasne vizualne in verbalne komunikacije posreduje ključna sporočila, ki so prepričljiva in ciljno usmerjena (prilagojena posamezni ciljni skupini oz. posamezniku). Tako oblikuje smiselne povezave z deležniki in s ciljnimi skupinami. Rezultati prizadevanj v okviru projekta bodo pokazali dodano vrednost, ki jo prinaša vključevanje deležnikov v soustvarjanje njegovih učinkov in večjega dosega njegovih sporočil in posledično komunikacijske strategije.

Ključne besede: storitve naravnega okolja, komuniciranje, gozdovi, družba, vrednost gozda, vključevanje ključnih deležnikov

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INTRODUCTION

To ensure that the real value of nature's services is adequately appreciated, they must be presented to the public in an appropriate way. Humans are usually not willing to pay for something they take for granted today and is considered as 'free goods' (Coull & Valantin 2008). The challenge is changing the mind-set through awareness-raising. A good communication strategy should convey the message as a tangible concern that contributes to the quality of our lives and the lives of our children (Iucn Regional Office for Pan-Europe 2011). Communicating nature's services will help the younger generation to understand the benefits we gain and joy and pleasure they can give us if we treat them with knowledge, respect and wisdom (Wiborn 2013).

The actions that have been taken in the past are not giving the results we need. Hohnen (2001) suggests that we should work together to find the right path forward. A multi-stakeholder approach can engage and harness the creativity from wide and balanced cross-section of stakeholders through solution driven dialogue (Hohnen 2001).

"Learning to engage in dialogue means to move from hearing to listening. It means taking one step beyond fighting, beyond adversarial, conflict-based interaction… Dialogue is the foundation for finding consensus solutions which integrate diverse views and generate the necessary commitment to implementation. It can form the basis to take us one step beyond talking towards common action" (Hemmati et al. 2002).

Hemmati et al. (2002) view communication as a tool to exchange views (opinions) among stakeholders in a Multi Stakeholder Platform (MSP). It includes the expression of views in combination with the understanding of views to the point of mutual understanding (Hemmati et al. 2002).

In the Lifegenmon (2016) project, coordinated by Slovenian Forestry Institute, the multi-stakeholder approach is used to communicate the forest related nature's services in connection to the 360-degree brand communication. A clear visual and verbal communication creates maximum awareness and brings the key project messages to life. 360-degree brand communication means showcasing the use of compelling and targeted messages, both online and offline, in an effort to forge meaningful connections with core stakeholders. Ultimately, the results will demonstrate the value of engaging supporters and champions in co-creating communications to extend reach and impact (Darigan Merenda 2013).

METHOD OF IMPLEMENTATION

The communication strategy of the LIFEGENMON project is carried out in two focused tasks. General dissemination and communication addresses the following stakeholders:

Kindergarten children
Pupils in primary and secondary schools
Students at Universities
Pedagogues
Socially active groups (different for each country)
Media

In task Targeted dissemination and communication the most important groups of stakeholders have been identified through dialogue between project partners:

Policy makers – key actors (the ones to convince) in the legislative process on a local, regional and European scale.

Municipalities within the region – local authorities can give necessary promotion and credibility needed for the maximisation of dissemination impact. They are also very appropriate partners for spreading information to target areas.

Active groups (ASP – Women organisation; third university for everlasting education, recreational sports associations and others, different per project country) – through "spreading the good word", socially active groups can increase the dissemination impact if addressed appropriately.

Academic audience – academics are often opinion makers, e.g. what they say usually resonates in public and professional space.

Chamber of Commerce – the Chamber of Commerce is an important player in the legislation department. It is very important to include big business in our dissemination strategy, because no legislation or regulation get passed without their influence. We need to raise their awareness of the importance of our main dissemination strategy topics.

Professional Chambers – smaller, but more specific legislation and regulation impact. Also a base of

professional experience. We also need to raise their awareness of the importance of our main dissemination strategy topics.

NGOs (such as professional associations, mountaineering organisations, scouts, hunters associations, climbers association, UMANOTERA – SI, WWF, Birdlife and others) – NGOs are well heard opinion makers among the urban population and are traditionally inclined to support the topics of our dissemination strategy. Very important players in any legislation process if activated.

Forest owners – forest owners are the ones that do (or at least approve) the majority of the actual work done in the focus area. It is aim to reach them with the conservational aspects of our dissemination strategy.

Unions of forest workers – they need to be addressed to spread the information on genetic forest protection and the future of European forests based on genetic diversity.

Civil protection service and volunteers – they are first to be activated at any major disaster events in the areas, due to extreme weather conditions or un-appropriate forest managing. Their activities are well visible in the public and can spread the word on the need for sustainable forest management and an early warning system for changes in forest populations.

Tourist organisations – sustainable and eco- tourism is becoming very popular. They are also traditionally inclined to support the topics of our dissemination strategy and reach a wide audience with their marketing so it makes sense to include them in our dissemination activities.

Carrying out communication activities goes beyond the narrow scope of the project to reach the highest impact through:

Connecting (in Slovenia cooperation with Slovenia Forest Service, University of Ljubljana – Biotechnical Faculty, Slovenian Academy of sciences and arts, etc.; participation at and organisation of events and conferences, trade fairs, media events etc.)

Dialogue (organisation of Workshops, receiving and evaluating feedback)

All activities are supported by media presence, web updates (Facebook, Twitter, LinkedIn, project web-site) and publications (newsletters, leaflets, teaching materials for teachers etc.).

MONITORING METHODS AND RESULTS

The impact of the activities will be monitored through lists of participants and an advanced monitoring matrix, based on questionnaires and interviews of participants at project's events. The monitoring is carried out by an internal project monitoring team, project partner Centre for information service, co-operation and development of NGOs.

The LIFEGENMON team has by end of 2016 reached over 4000 people at over 90 different events and the LIFEGENMON website had over 8300 users who viewed over 30000 pages (Source: Google analytics).

Results and progress of implementation will be presented in LIFEGENMON progress reports and scientific and professional articles.

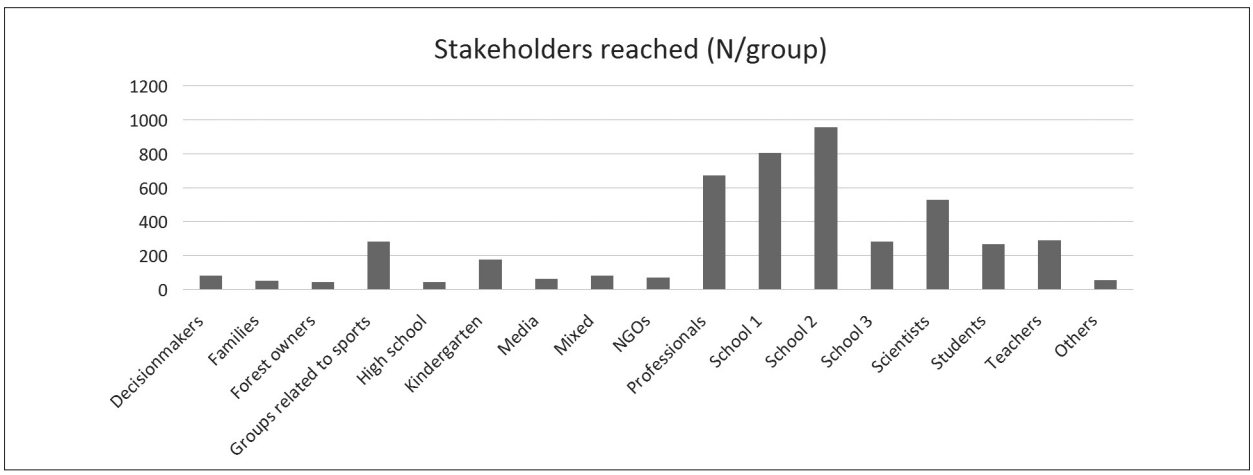

Figure 1: Participants at the LIFEGENMON events per target group from July 2014 to June 2016
Slika 1: Udeleženci na LIFEGENMON dogodkih za ciljne skupine, od julija 2014 do- junija 2016

POVZETEK

Za uspešno ozaveščanje javnosti o vrednosti storitev, ki jih zagotavlja naravno okolje, morajo te biti predstavljene na ustrezen način. Ljudje običajno niso pripravljeni plačati za storitve, ki so do zdaj veljale za proste (brezplačne). Spreminjanje načina razmišljanja s pomočjo ozaveščanja je torej velik izziv. Dobra komunikacijska strategija mora posredovati sporočilo o prispevku naravnega okolja h kakovosti človeškega življenja in bivanja. Ozaveščanje in širjenje znanja o storitvah, ki jih nudi naravno okolje, nam pomaga razumeti vrednost teh storitev in veselje ter zadovoljstvo, ki nam jih ponuja okolje danes in nam jih bo tudi v prihodnosti, če ga bomo obravnavali z znanjem, spoštovanjem in modrostjo.

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Projekt LIFEGENMON, ki ga vodi Gozdarski inštitut Slovenije, v svojo komunikacijsko in diseminacijsko strategijo vključuje splošne in ciljne skupine deležnikov, s katerimi komunicira o vrednosti storitev, ki jih nudijo gozdovi. S pomočjo jasne vizualne in verbalne komunikacije posreduje ključna sporočila, ki so prepričljiva in ciljno usmerjena (prilagojena posamezni ciljni skupini oz. posamezniku). Tako oblikuje smiselne povezave z deležniki in s ciljnimi skupinami. Rezultati prizadevanj v okviru projekta bodo pokazali dodano vrednost, ki jo prinaša vključevanje deležnikov v soustvarjanje njegovih učinkov in večjega dosega njegovih sporočil in posledično komunikacijske strategije.

Komunikacijska strategija projekta LIFEGENMON se izvaja v dveh projektnih aktivnostih preko različnih deležnikov in ciljnih skupin. Splošna diseminacija naslavlja otroke, študente, pedagoge, razne interesne skupine in medije. Usmerjena diseminacija pa aktivno vključuje v svoje aktivnosti odločevalce, regionalne oblasti, interesne skupine, akademsko sfero, gospodarske in obrtne zbornice, lastnike gozdov in njihova združenja, sindikate gozdnih delavcev, službe za civilno zaščito in prostovoljce ter turistične organizacije.

Povezovanje deležnikov in dialog s ključnimi organizacijami na področju (v sodelovanju z Zavodom za gozdove Slovenije, Univerzo v Ljubljani - Biotehniška fakulteta, Slovensko akademijo znanosti in umetnosti) preko (so-)organizacije konferenc, dogodkov in sejmov je ključno pri izvajanju projektnih aktivnosti. Ozaveščanje in prisotnost na socialnih omrežjih pa dopolnjujeta in skrbita za širšo prepoznavnost ciljev projekta.

Učinek aktivnosti se spremlja preko seznamov udeležencev na dogodkih in preko monitoringa napredka projekta na podlagi vprašalnikov in intervjujev udeležencev.

LIFEGENMON ekipa je konec leta 2016 dosegla več kot 4000 ljudi, na več kot 90 različnih dogodkih, spletno stran LIFEGENMON je obiskalo več kot 8300 uporabnikov, ki so si ogledali več kot 30.000 strani.

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To the LIFEGENMON project coordinating beneficiary, Slovenian Forestry Institute.

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CONCENTRATION OF PROTEINS, BETA-GLUCANS, TOTAL PHENOLS AND ANTIOXIDANT CAPACITY OF SLOVENIAN SAMPLES OF BARLEY

VSEBNOST PROTEINOV, BETA-GLUKANOV, SKUPNIH FENOLOV IN ANTIOKSIDATIVNA VREDNOST SLOVENSKIH VZORCEV JEČMENA

Giovanni Bonafaccia[a], Nicolò Merendino[b], Francesco Bonafaccia[b], Romina Molinari[b], Vincenzo Galli[a], Igor Pravst[c], Vida Škrabanja[d], Zlata Luthar[d], Aleksandra Golob[d] & Mateja Germ[d] *

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ABSTRACT

Concentration of proteins, beta-glucans, total phenols and antioxidant capacity of Slovenian samples of barley

Four Slovenian barley samples were analyzed for the content of the ash, proteins, β-glucans and total polyphenols; and for the antioxidant capacity by two methods. Antioxidant capacity was determined by the ferric reducing antioxidant power (FRAP) activity and by the oxygen radical absorbance capacity (ORAC) assay. For the comparison, four foreign barley commercial samples were analyzed, three of German origin and one from Italy. Slovenian samples had equal or lower content of ash, proteins and β-glucans in comparison to foreign samples. A Slovenian barley sample from Šalovci, Prekmurje had the highest content of β-glucans, namely 5.73% in dry weight (DW). The results obtained by both methods of the determination of antioxidant capacity showed significant correlation with the total polyphenols content.

Key words: *Hordeum*, barley, beta-glucans, phenols

IZVLEČEK

Vsebnost proteinov, beta-glukanov, skupnih fenolov in antioksidativna vrednost slovenskih vzorcev ječmena

Štiri vzorce ječmena iz Slovenije smo analizirali na vsebnost pepela, beljakovin, β-glukanov in skupnih fenolov. S pomočjo dveh metod smo tudi ugotavljali antioksidativno zmogljivost. Antioksidantivna zmogljivost je bila določena z zmanjšanjem antioksidativne sposobnosti železa (metoda FRAP) in s sposobnostjo absorbance kisikovega radikala (metoda ORAC). Za primerjavo smo analizirali štiri komercialne vzorce tujega ječmena, tri nemške in enega iz Italije. Slovenski vzorci so imeli enako ali nižjo vsebnost pepela, beljakovin in β-glukanov v primerjavi s tujimi. Vendar je slovenski vzorec ječmena iz Šalovcev (Prekmurje) vseboval najvišjo vsebnost β-glukanov, in sicer 5,73% suhe teže (DW). Rezultati obeh metod določanja antioksidativne kapacitete so bili primerljivi in so pokazali pomembno povezavo z vsebnostjo celokupnih fenolov.

Ključne besede: Hordeum, ječmen, beta-glukani, fenoli

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1 INTRODUCTION

Interest in growing barley, a crop cultivated by humankind for a long time, has become more intense in recent years in Slovenia, Europe and elsewhere, due to the nutritional value of this ancient crop. Barley was cultivated for centuries for human food, but the areas of growing of barley declined in the middle of the 20th century. However high fibre foods are recently preferred in human nutrition. It should be noted that the cultivation of barley was for many years particularly focused on achieving high dry matter content, high starch, and low content of dietary fibre. This is because barley has been used mostly for either animal feed or for production of barley malt. Cultivars with higher levels of dietary fibre, particularly of β-glucans, are therefore now gaining importance for use in human nutrition and some of these are being introduced to Southern and Central Europe, including Slovenia.

Identification of suitable cultivars high in β-glucan content, evolution of milling and dry separation techniques and using the β-glucan-enriched fractions as an ingredient in bakery products are subjects for further needed research. The methods developed will allow obtaining new, nutritionally valuable barley products with high potential for use in foods.

In recent months it was a quick development of research and published papers on barley β-glucans. Shaik et al. (2016) reported that in amylose-only starch chemotypes it is showed significant reduction in starch accumulation with the re-direction to protein and β-glucan accumulation. Ho et al. (2016) newly reported a systematic review of the effects of different high molecular weight β-glucans on cholesterol and cardiovascular disease risk reduction.

Moza & Gujral (2016) reported that in India high altitude barley cultivars (between 1200 m and 3500 m above sea level) contain higher levels of total β-glucans in comparison to the barley cultivars grown in plains (97-126 m altitude). Cultivars grown in higher altitudes may find better utilization in nutraceutical foods. Han et al. (2016), Zhu et al. (2016) and Dimitroff et al. (2016) suggested how, understanding genetic background, barley β-glucans based functional food may be developed for the management of obesity. Belobrajdic et al. (2016) suggest a wholegrain barley high molecular weight β-glucan to lover food intake.

After the separation in barley after milling to ten milling fractions, the highest β-glucan content was determined in the bran fraction (Wiege et al. 2016). It was a strong positive correlation between β-glucan and protein content. Fractions containing high level of β-glucan have as well high concentration of protein and ash (Wiege et al. 2016).

Croatian barley samples were screened for total high molecular weight β-glucans content (Krstanović et al. 2016), but such kind of research was not yet performed in Slovenia.

2 MATERIALS AND METHODS

2.1 Samples

Barley samples analysed are presented in Table 1.

Table 1: Description of studied barley samples
Preglednica 1: Opis preučevanih vzorcev ječmena

Sample	Description
A	Winter barley sample from Šentjernej, Dolenjska, Slovenia
B	Winter barley sample from Trbonje, Dravograd, Slovenia
C	Winter barley sample from Šalovci, Prekmurje, Slovenia
D	Winter barley sample from Murska Sobota, Prekmurje, Slovenia
E	Winter barley sample from Nienstad, Germany
F	Winter barley sample from Germany, cultivated in Jable, Slovenia
G	Naked barley sample from Asheberg, Germany
H	Winter barley sample from Lazio, Italy

Samples A-D are samples of barley grain, each of barley domestic cultivars was grown for years by farmers in different parts of Slovenia. The origin of barley cultivars is not known. Samples E-F are commercial barley samples available in Slovenia, originating, as far as it is known, in Germany or Italy.

2.2 Methods

2.2.1 Determination of moisture, ash, proteins and β-glucans

Constituents of barley samples were determined using the standard methods.

For the determination of moisture: Method ICC No. 109/1, was used.

In short: This method can be taken as the standard for the development of methods which are specifically suited to the practical determination of the moisture content of wheat, rice (hulled paddy), barley, maize or whole maize meal, millet, rye and oats, as grains, ground grains, semolina and flour. It is not to be used for the settlement of commercial disputes. Measurement of moisture loss when the material, ground if necessary without change of moisture content, is equilibrated in an anhydrous atmosphere at a temperature between 45 and 50 °C and at a pressure of 1.3 ... 2.7 KPa (10 ... 20 mm Hg).

For the determination of ash: Method ICC No. 104, was used.

In short: Samples were ground and placed into crucibles, and crucibles placed into a muffle furnace. The ashing was carried out at 900 °C, and is completed when the cool residue was white or nearly white. As the ash quantity has to be related to dry matter, the moisture content of the test sample has to be determined separately.

For the determination of proteins: Method ICC 105/2. Kjeldhal Method was used.

In short: The organic matter of the sample is oxidized with concentrated sulfuric acid in the presence of a catalyst: the product of the reaction $(NH_4)_2SO_4$ is treated by alkali; free ammonia is distilled and titrated.

For the determination of β-glucans: Method ICC No.166 was used.

In short: β-D-glucan is determined using highly purified lichenase and β-D-glucosidase. β-D-glucan is specifically hydrolyzed by lichenase to oligosaccharides, which are quantitatively cleaved to glucose by β-glucosidase. Glucose is measured using glucose oxidase - peroxides - buffer mixture. Method is rapid procedure for direct, quantitative measurement of (1->3) (1->4)- β-D-glucan (β-D-using highly purified lichenase and β-glucosidase). β-D-glucan is specifically hydrolyzed by lichenase to oligosaccharides, which are then quantitatively cleaved to glucose by β-glucosidase. Glucose is measured using glucose oxidase-peroxidase-buffer mixture.

2.2.2 Extraction method

In this study, 80% methanol extracts from barley were used for the determination of total phenolic content and antioxidant property. Barley samples (1 g) were extracted with 6 ml acidified methanol (HCl/methanol/water, 1:80:10, v/v/v) at room temperature (25 °C) for 2 h using orbital shaker. The mixture was centrifuged at 3000g for 10 min. The supernatant was used for determination of total phenolic content and antioxidant capacity. Several studies have shown that 80% methanol is an effective solvent in extracting phenolic and other polar substances from cereals (Lahouar et al. 2014).

2.2.3 Total phenolic content determination

Total phenols (TP) were determined using a modification of the Folin–Ciocalteu method method described by Singleton & Rossi (1965). Briefly, the assay was conducted by mixing 4 mL of deionized water, 0.25 mL of extracts (see 'Extract preparations' in this section), 0.25 mL of Folin–Ciocalteu reagent, and 0.5 mL of Na_2CO_3. After 30 min at room temperature, the absorbance of the mixture was measured at 725 nm. A standard curve was prepared with gallic acid. The final results were expressed as mg of gallic acid equivalents (GAE) per g of dry weight (DW). All of the analyses were conducted in triplicate and the results report the sum of bound and soluble phenolic compounds.

2.2.4 Determination of ferric reducing antioxidant power (FRAP) activity

A ferric reducing antioxidant power (FRAP) assay was performed according to the method described by Benzie & Strain (1999), which was adapted for 96-well plates and an automatic reader (Infinite 2000, Tecan, Salzburg, Austria). The method is based on the reduction of the Fe^{3+}-2,4,6-tripyridyl-s-triazine (TPTZ) complex to its ferrous form at a low pH. Briefly, 160 mL of FRAP assay solution (consisting of 20 mM ferric chloride solution, 10 mM TPTZ solution, and 0.3 M acetate buffer at pH 3.6) was prepared daily, mixed with 10 mL of the sample, standard, or blank, and dispensed into each well of a 96-well plate. The absorbance was measured at 595 nm at 37 °C after 30 min of incubation. All of the analyses were conducted in triplicate. The final results are expressed as μmol Fe^{2+} equivalents per g of the DW of the samples, and the results were obtained using a standard curve with different concentrations of ferrous sulfate heptahydrate ($FeSO_4 \times 7H_2O$).

2.2.5 The oxygen radical absorbance capacity (ORAC) assay

The oxygen radical absorbance capacity (ORAC) was determined using the hydroxyl radical antioxidant capacity (HORAC) assay kit (Oxford Biomedical Research, Oxford USA) according to the manufacturer's instructions. The final ORAC values were expressed as gallic acid equivalents and determined according to the standard curve. All of the analyses were conducted in triplicate.

3. RESULTS AND DISCUSSION

Slovenian barley samples were analysed and compared with the foreign ones. Results of the ash (i.e. total content of mineral elements), protein and β-glucans concentration are presented in Table 2.

Table 2: Concentration of ash, protein and β-glucans in barley samples, mean values and standard deviations (DW=dry weight).
Preglednica 2: Koncentracija pepela, beljakovin in β-glukanov v vzorcih ječmena, povprečne vrednosti in standardni odkloni (DW=sušina).

Sample	Moisture %	Ash % DW	Protein % DW	β-glucans % DW
A	10.9 ± 0.3	1.83 ± 0.08	8.7 ± 0.1	4.56 ± 0.09
B	11.0 ± 0.5	1.67 ± 0.10	8.8 ± 0.2	4.06 ± 0.07
C	11.0 ± 0.3	1.30 ± 0.11	8.2 ± 0.6	5.73 ± 0.11
D	11.3 ± 0.2	1.66 ± 0.04	8.2 ± 0.5	4.19 ± 0.06
E	10.9 ± 0.4	1.72 ± 0.07	9.7 ± 0.5	5.36 ± 0.08
F	10.7 ± 0.3	1.95 ± 0.09	9.8 ± 0.2	4.76 ± 0.04
G	10.3 ± 0.5	2.25 ± 0.06	11.1 ± 0.7	5.19 ± 0.06
H	11.4 ± 0.3	2.42 ± 0.03	9.6 ± 0.4	3.73 ± 0.10

All analyzed samples show a high protein content (average 9.3% DW), with values ranging from 8.2% DW to 11.1% DW. The sample G had a highest value. From the point of view of β-glucans the sample D (Šalovci, Slovenia) is the most interesting because it had highest β-glucans concentration.

Correlation coefficient between ash and proteins in grain among all samples analysed was 0.74; correlation coefficient between ash and ß-glucans was -0.46; correlation coefficient between proteins and ß-glucans was 0.15. We used Pearson correlation coefficient. Thus the correlation between ash and proteins is significant ($p<0.5$) and positive, correlation between ash and β-glucans was significant ($p<0.5$) and negative. There was no significant correlation between the amount of proteins and β-glucans in studied barley samples. Barley has a distinct advantage over some other grains in that β-glucan soluble fiber is found throughout the entire barley kernel. In some other grains, the fiber is only found in the outer bran layer. If these grains are processed, the fiber can be easily lost (Wiege et al. 2016).

The all samples analysed showed average values of β-glucans 4.69% DW, with a maximum value of 5.73% DW and a minimum value of 3.73% DW.

The ash values were with a minimum of 1.3% DW, and a maximum of 2.42% DW.

To better understand the relationship between the antioxidant activity and total phenolic content, the TPC of the sample extracts were determined using the Folin–Ciocalteu phenol reagent. The results are expressed as mg of gallic acid equivalents per gram of dry mater, and are presented in Table 3. Barley samples with high amount of phenolics also showed high antioxidant activity (FRAP and ORAC assay).

The total antioxidant capacity was in linear regression with the total phenolic content in barley samples ($R2 = 0.9948$ and 0.8192 for the results of FRAP and ORAC assays, respectively) (Fig. 1).

There were differences in the antioxidant activities by ORAC and FRAP, and in content of total polyphenols of investigated barley samples.

Table 3: The total phenolic contents (TP) and antioxidant capacity (FRAP and ORAC method) of barley samples. Data are reported to mean (n=3) ± standard error. Values in the same column not sharing a common letter differ significantly at P≤0.05. Test ANOVA. X mg GAE/g dried weight (DW). y µmol Fe^{2+} equivalent/g DW. z GAE mM/g DW. GAE: gallic acid equivalent; DW: dry weight
Preglednica 3: Vsebnost skupnih fenolov (TP) in antioksidantivna zmogljivost (metodi FRAP in ORAC) pri različnih vzorcih ječmena. Podatki so povprečje (n = 3) ± standardna napaka. Vrednosti v istem stolpcu, ki nimajo iste črke se med seboj značilno razlikujejo P ≤ 0.05. Test ANOVA. X mg GAE/g suhe teže (DW). y µmol Fe^{2+} ekvivalent/g DW. z GAE mM/g DW. GAE: ekvivalent galne kisline; DW: suha teža

Sample	TPCx	FRAPy	ORACz
A	2.8 ± 0.2b	227.0 ± 1.5b	21.0 ± 0.1b
B	2.0 ± 0.3b	180.2 ± 2.9c	21.0 ± 0.3b
C	1.5 ± 0.2c	149.2 ± 1.6d	17.1 ± 0.2c
D	2.4 ± 0.3b	202.7 ± 0.2b	20.6 ± 0.4b
E	3.5 ± 0.5a	273.0 ± 0.9a	23.2 ± 0.9a
F	2.1 ± 0.2b	184.2 ± 1.3c	21.1 ± 0.2b
G	3.8 ± 0.4a	286.6 ± 2.1a	25.7 ± 0.2a
H	3.0 ± 0.1 a	231.0 ± 2.2 b	24.1 ± 0.1 a

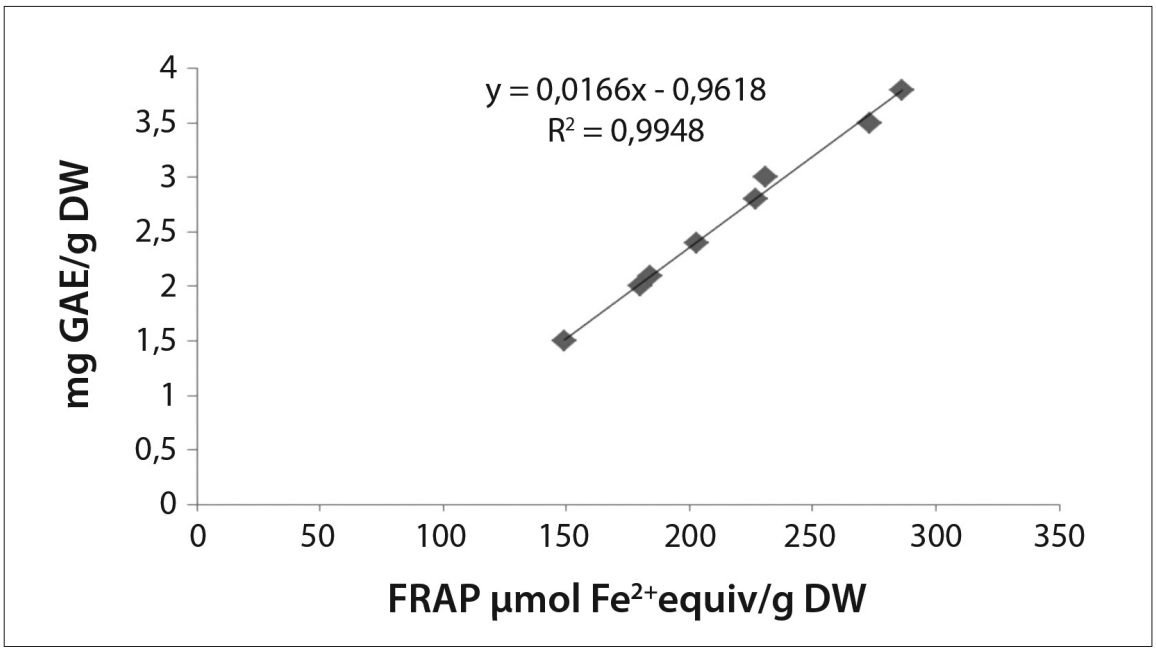

Figure 1: Linear regression between total phenolic content and the total antioxidant capacity (FRAP method - a ferric reducing antioxidant power) of barley samples. GAE: gallic acid equivalent; DW: dry weight
Slika 1: Linearna regresija med skupno vsebnostjo fenolov in skupno antioksidativno kapaciteto vzorcev ječmena (metoda FRAP - zmanjšanje antioksidativne moči železa). GAE: ekvivalent galne kisline; DW: suha teža

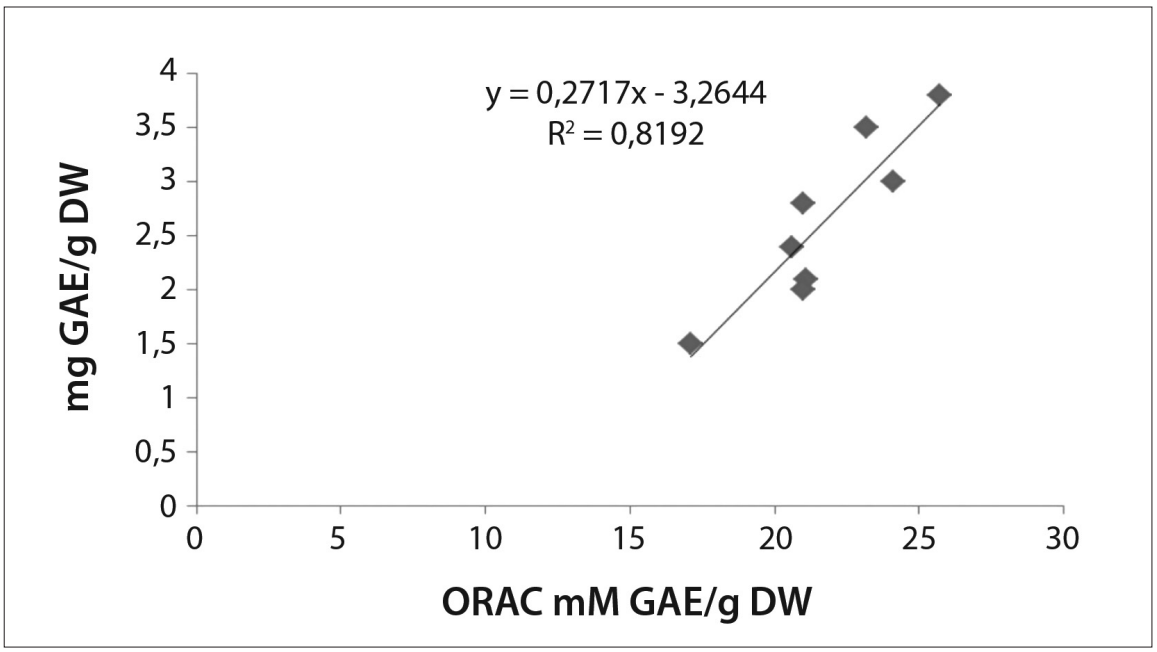

Figure 2: Linear regression between total phenolic content and the total antioxidant capacity (ORAC method - the oxygen radical absorbance capacity) of barley samples. GAE: gallic acid equivalent; DW: dry weight
Slika 2: Linearna regresija med skupno vsebnostjo fenolov in skupno antioksidativno kapaciteto vzorcev ječmena (ORAC metoda - absorbanca kisikovega radikala). GAE: ekvivalent galne kisline; DW: suha teža

4 CONCLUSIONS

The Slovenian barley sample from Šalovci, Prekmurje had the highest content of β-glucans among the studied Slovenian and foreign samples, namely 5.73% in dry weight. The results obtained by both methods of the determination of antioxidant capacity were in linear relation with the total phenols content.

5 POVZETEK

Zanimanje za pridelovanje ječmena, stare poljščine, se je zadnje čase povečalo v Sloveniji, Evropi in drugod, predvsem zaradi njegove hranilne vrednosti. Ječmen gojijo za prehrano ljudi že stoletja, vendar so se območja pridelave zmanjšala zlasti v sredini 20. stoletja. V prehrani ljudi so zadnje čase zelo zaželena živila, kot je ječmen, z visoko vsebnostjo vlaknin. Žlahtnjenje in pridelovanje ječmena sta bili vrsto let osredotočeni predvsem na doseganje visokih pridelkov sušine, veliko škroba in nizko vsebnost prehranskih vlaknin, ker so ga večinoma uporabljali bodisi za živalsko krmo ali za proizvodnjo ječmenovega sladu. Sorte, ki vsebujejo več prehranskih vlaknin, še posebej β-glukanov, so v novejšem času vedno bolj pomembne za uporabo v prehrani ljudi.

V zadnjih mesecih je bil hiter razvoj raziskav in objavljanja člankov o ječmenovih β-glukanih. Shaik in sod. (2016) so poročali, da je genotip ječmena z amiloznim škrobom pokazal pomembno zmanjšanje kopičenja škroba s preusmerjanjem sinteze na beljakovine in akumulacijo β-glukanov.

Štiri vzorce ječmena iz Slovenije smo analizirali na vsebnost pepela, beljakovin, β-glukanov in skupnih fenolov ter za antioksidativno kapaciteto z dvema metodama. Antioksidativna zmogljivost je bila določena z zmanjšanjem antioksidativne moči železa (metoda FRAP) in s sposobnostjo absorbcije kisikovega radikala (metoda ORAC). Za primerjavo smo analizirali štiri tuje komercialne vzorce ječmena, tri nemškega izvora in enega iz Italije. Slovenski vzorci so imeli enako ali nižjo vsebnost pepela, beljakovin in β-glukanov v primerjavi s tujimi. Vendar je slovenski vzorec ječmena iz Šalovcev (Prekmurje) imel najvišjo vsebnost β-glukanov

in sicer 5,73% suhe teže (DW). Vzorci imajo povprečne vrednosti β-glukanov 4,69% suhe teže (DW), z najvišjo vrednostjo 5,73% suhe teže (DW) in minimalno vrednostjo 3,73% suhe teže (DW). Rezultati obeh metod določanja antioksidativne kapacitete so pokazali pomembno korelacijo s celotno vsebnostjo polifenolov.

Za boljše razumevanje razmerja med antioksidativnim delovanjem in skupno vsebnostjo fenolov so bili analizirani ekstrakti vzorcev za TPC z uporabo Folin-Ciocalteu-jevega fenolnega reagenta. Rezultati so bili izraženi kot mg ekvivalentov galne kisline na gram suhe teže in so predstavljeni v razpredelnici 2. Raziskani vzorci ječmena E, G, H vsebujejo najvišjo vrednost TPC, medtem ko je bila najnižja vrednost v vzorcu C (razpredelnica 2, prvi stolpec). Na splošno je ječmen z veliko količino fenolov pokazal tudi visoko antioksidativno aktivnost (po metodah FRAP in ORAC). Skupna antioksidativna zmogljivost je bila tudi linearno povezana s skupno vsebnostjo fenolov v vzorcih ječmena (R2 = 0,9948 in 0,8192 za rezultate iz FRAP in ORAC metod) (sl. 1). Rezultati so pokazali, da so različni vzorci imeli različne antioksidativne sposobnosti.

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Appendix 1 to paper in 57/1, pp. 5-61: Synoptic table of *Alnus glutinosa* dominating communities in Slovenia and N-Italy
Priloga 1 k članku v 57/1, str. 5-61: Sintezna tabela združb črne jelše (*Alnetum glutinosae s.* lat.) v Sloveniji in severni Italiji

	Successive number (Zaporedna številka)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Number of relevés (Število popisov)		18	6	4	10	5	4	10	9	7	4	8	11	7	52	32	11	6
	Sign for syntaxa (Oznaka sintaksona)		OrClo	LoAg-Vd	LoAgsb-R	LoAgcb-R	LoAgsb1-R	LoAg1-Vd	LoAg-ZP	PsCbla-Vd	Fra-Is	CacAg-R	CraA-Md	CelAggr-A	SnAg-A	ChAg-It	CelAg-It	CelAgla-A	CelAgcr-A
AG	***Alnetea glutinosae***																		
	Alnus glutinosa	E3b	50	100	100	100	100	100	100	89	14	100	100	100	100	100	100	100	100
	Alnus glutinosa	E3a	11	17	.	30	40	25	70	11	.	.	13	.	.	.	.	.	.
	Alnus glutinosa	E2b	.	.	.	10	0	25	40	22	.	75	.	27	29	.	.	64	33
	Alnus glutinosa	E2a	.	.	.	20	20	25	10	11	.	.	38	.	.	.	.	.	.
	Salix cinerea	E3a	.	.	.	.	20	.	.	.	.	25	.	.	.	.	.	.	.
	Salix cinerea	E2b	.	.	.	.	.	.	20	11	14	25	38	.	.	42	34	27	.
	Salix aurita	E2b	.	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Thelypteris palustris	E1	.	.	.	.	.	.	20	.	.	.	.	.	.	21	47	.	.
	Ribes nigrum	E2a	.	.	.	.	.	.	.	.	.	.	25	.	.	.	.	27	33
	Calamagrostis canescens	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6	.	.
AI	***Alnion incanae***																		
	Rubus caesius	E1	22	50	50	70	100	25	80	22	100	.	50	18	14	52	22	9	33
	Carex pendula	E1	22	50	.	.	.	25	10	78	29	.	.	.	.	6	.	.	.
	Hemerocallis fulva	E1	11	.	.	.	20	.	.	.	.	.	.	.	.	.	.	.	.
	Cardamine impatiens	E1	6	.	.	10	60	25	10	.	.	.	.	.	.	.	.	.	.
	Ribes rubrum	E2a	6	33	.	.	.	.	30	.	.	.	.	.	.	.	3	.	.
	Alnus incana	E3b	.	.	.	.	.	.	20	.	.	.	.	.	.	.	.	.	.
	Alnus incana	E3a	6	.	.	.	.	.	10	.	.	.	.	.	14	.	.	.	.
	Alnus incana	E2a	.	.	.	.	.	.	20	.	.	.	.	.	.	.	.	.	.
	Festuca gigantea	E1	5	.	.	10	40	.	.	.	.	.	13	.	57	4	.	.	.
	Humulus lupulus	E2b	.	33	.	10	60	.	10	.	.	.	25	.	0	.	.	.	.
	Humulus lupulus	E2a	.	.	.	30	.	50	20	.	.	75	25	36	14	33	29	9	50
	Humulus lupulus	E1	.	17	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Populus alba	E3b	.	33	.	.	.	.	.	.	14	.	.	.	.	2	.	.	.
	Aesculus hippocastanum	E3a	.	17	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Aesculus hippocastanum	E2b	.	0	25	10	20	.	.	.	.	.	.	.	.	.	.	.	.
	Aesculus hippocastanum	E2a	.	17	25	10	20	.	.	.	.	.	.	.	.	.	.	.	.
	Equisetum arvense	E1	.	17	75	70	20	50	80	11	29	50	50	36	100	10	9	.	.
	Equisetum telmateia	E1	.	17	.	10	20	25	20	.	71	.	.	.	.	15	9	.	.
	Populus alba	E3a	.	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Populus alba	E2a	.	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Populus alba	E1	.	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Agropyron caninum	E1	.	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Carex remota	E1	.	.	.	30	20	50	20	100	.	.	13	9	.	23	25	18	.
	Frangula alnus	E3a	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Frangula alnus	E2	.	.	.	10	.	25	20	.	14	50	13	18	.	36	53	74	.
	Frangula alnus	E1	.	.	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
	Knautia drymeia subsp. intermedia	E1	.	.	.	.	20	.	10	.	.	25	.	.	.	.	.	.	.
	Dryopteris carthusiana	E1	.	.	.	.	.	50	30	11	.	.	13	18	.	40	16	81	50
	Chrysosplenium alternifolium	E1	.	.	.	.	.	.	30	.	.	.	13	.	.	.	.	9	.
	Impatiens noli-tangere	E1	.	.	.	.	.	.	30	.	.	.	.	.	.	2	.	9	67
	Arum italicum	E1	.	.	.	.	.	.	.	.	29	.	.	.	.	.	.	.	.
AqR	***Alno-Quercion roboris***																		
	Quercus robur	E3b	17	33	.	.	.	25	.	78	.	.	.	.	.	27	9	36	.
	Quercus robur	E3a	6	17	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Quercus robur	E2b	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	18	.
	Quercus robur	E2a	.	17	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Quercus robur	E1	11	17	25	.	.	25	.	22	.	25	13	.	.	.	.	9	.
	Fraxinus angustifolia	E3b	.	17	.	.	.	.	.	78	100	.	13	.	.	.	.	18	.
	Fraxinus angustifolia	E3a	.	17	.	.	.	.	.	11	86	.	13	.	.	4	.	.	50
	Fraxinus angustifolia	E2b	.	17	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
	Fraxinus angustifolia	E2a	.	33	.	.	.	.	.	56	43	25	13	.	.	.	.	.	.
	Fraxinus angustifolia	E1	.	17	.	.	.	.	.	33	57	.	.	.	.	.	.	.	.
	Ulmus laevis	E3b	.	.	.	10	.	.	.	.	.	.	.	.	.	.	.	.	.
	Ulmus laevis	E3a	.	.	.	10	.	.	.	.	29	.	.	.	.	.	.	.	.
	Ulmus laevis	E2b	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
	Ulmus laevis	E2a	.	.	.	10	.	.	.	.	14	.	.	.	.	.	.	.	.
	Ulmus laevis	E1	.	.	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
	Pseudostellaria europaea	E1	.	.	.	.	.	25	.	44	.	.	.	.	.	.	.	.	.
	Leucojum aestivum	E1	.	.	.	.	.	.		100		100	13	18	.	2	.	91	.
	Clematis viticella	E1	.	.	.	.	.	.	.	11	.	.	.	.	.	.	.	.	.
	Carex brizoides	E1	.	.	.	.	.	.	.	.	.	.	13	27	71	27	3	18	17
	Prunus padus	E2	.	.	.	.	.	.	.	.	.	.	.	82	29	.	.	55	33
	Prunus padus	E1	.	.	.	.	.	.	.	.	.	.	.	18	14	.	.	.	.
	Rumex sanguineus	E1	.	.	.	.	.	.	.	.	.	.	.	.	14	.	.	.	.
	Pulmonaria dacica	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	27	.
	Glechoma hirsuta	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	17

	Successive number (Zaporedna številka)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
SP	***Salicetea purpureae, Salicion albae***																		
	Populus nigra	E3b	28	67	.	.	.	25	.	.	43	.	.	.	.	8	3	.	.
	Populus nigra	E3a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Populus nigra	E2b	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
	Populus nigra	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Salix alba	E3b	6	17	25	30	60	25	20	33	71	25	38	.	.	27	9	.	.
	Salix alba	E3a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Salix alba	E2b	.	.	.	.	.	.	10	.	.	.	.	.	14	.	.	.	.
	Vitis sylvestris	E3a	6	.	.	.	.	.	.	.	29	.	.	.	.	.	.	.	.
	Vitis sylvestris	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Salix fragilis	E3b	.	17	25	10	.	.	.	11	.	.	.	.	.	.	.	.	.
	Salix fragilis	E3a		.	.	10	.	.	.	.	.	.	.	.	.	.	.	.	.
	Salix eleagnos	E3b	.	17	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.
	Salix eleagnos	E3a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Acer negundo	E3b	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Acer negundo	E3a	.	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Acer negundo	E2b	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Acer negundo	E2a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Acer negundo	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Populus x canescens	E3b		.	.	10	60	.	.	.	.	.	38	.	.	.	.	.	.
	Salix purpurea	E2a		.	.	.	.	.	10	.	.	.	25	.	.	.	.	.	.
	Salix purpurea	E3a	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Salix purpurea	E2b	.	.	.	.	20	.	20	.	.	.	.	.	.	.	.	.	.
	Salix triandra	E2b		.	.	.	.	.	.	.	.	.	13	.	29	.	.	.	.
TA	***Tilio-Acerion***																		
	Acer platanoides	E3b	.	.	.	.	20	.	.	.	.	.	.	.	.	.	.	.	.
	Acer platanoides	E2a	.	.	.	.	40	.	.	.	.	.	.	.	.	.	.	.	.
	Acer platanoides	E1	.	.	.	.	.	.	20	.	.	.	.	.	.	.	.	.	.
	Acer pseudoplatanus	E3b	33	33	25	20	40	.	30	.	.	.	13	.	.	.	.	.	.
	Acer pseudoplatanus	E3a	28	.	.	.	.	25	20	.	.	.	.	.	.	.	.	.	.
	Acer pseudoplatanus	E2b	28	17	25	50	40	25	50	.	.	50	.	9	29	2	.	.	.
	Acer pseudoplatanus	E2a	28	17	.	.	.	25	50	.	.	.	.	.	.	.	.	.	.
	Acer pseudoplatanus	E1	39	17	50	40	.	50	60	.	.	25	25	.	.	.	.	.	.
	Juglans regia	E3b	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Juglans regia	E3a	.	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Juglans regia	E2b	.	.	.	.	20	.	.	.	.	.	.	.	.	.	.	.	.
	Juglans regia	E2a	.	.	.	10	20	.	.	.	14	.	.	.	.	.	.	.	.
	Juglans regia	E1	11	17	.	.	.	.	.	.	29	.	.	.	.	.	.	.	.
	Lunaria rediviva	E1	17	17	.	.	.	.	20	.	.	.	13	.	71	.	.	.	.
	Tilia platyphyllos	E3b	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Tilia platyphyllos	E3a	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Tilia platyphyllos	E2b	6	.	25	.	.	.	.	.	.	.	.	9	14	.	.	.	.
	Tilia platyphyllos	E2a	11	.	.	.	.	25	10	.	.	.	.	.	.	.	.	.	.
	Tilia platyphyllos	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Ulmus glabra	E3b	11	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Ulmus glabra	E3a	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Ulmus glabra	E2b	22	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Ulmus glabra	E2a	11	.	.	.	20	.	20	.	.	.	.	.	.	.	6	.	.
	Ulmus glabra	E1	6	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Thalictrum aquilegiifolium	E1	11	.	25	10	.	.	20	.	.	.	25	.	57	4	3	.	.
	Arum maculatum	E1	6	.	25	70	40	.	30	56	86	25	25	.	14	2	.	.	.
	Aruncus dioicus	E1	6	17	.	10	.	.	.	.	.	.	.	.	57	.	.	.	.
	Cardamine flexuosa	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Geranium robertianum	E1	.	17	.	.	20	.	20	.	.	.	13	.	.	.	.	.	.
	Hesperis candida	E1	.	.	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Adoxa moschatellina	E1	.	.	.	.	20	.	10	.	.	.	.	.	14	.	.	.	.
	Dryopteris affinis	E1	.	.	.	.	.	.	10	.	.	.	.	.	14	.	.	.	.
	Tephroseris pseudocrispa	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Polystichum aculeatum	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Staphylea pinnata	E2b	.	.	.	.	.	.	.	11	.	.	.	.	.	.	.	.	.
	Staphylea pinnata	E2a	.	.	.	.	.	.	.	11	.	.	.	.	.	.	.	.	.
EC	***Erythronio-Carpinion***																		
	Primula vulgaris	E1	83	33	.	50	40	50	60	22	43	.	.	.	29	2	.	.	.
	Ornithogalum pyrenaicum	E1	78	67	100	100	60	.	10	33	29	.	.	.	.	.	.	.	.
	Galanthus nivalis	E1	67	100	100	10	40	.	40	22	.	.	.	.	.	.	.	.	.
	Helleborus odorus	E1	56	.	.	.	.	.	40	11	.	.	.	.	.	.	.	.	.
	Lonicera caprifolium	E2a	33	50	.	.	.	50	10	11	86	.	.	.	.	12	.	9	.
	Crocus vernus subsp. vernus	E1	28	.	.	90	.	50	60	44	.	.	.	.	.	.	.	.	.
	Erythronium dens-canis	E1	28	.	.	.	.	25	.	56	.	.	.	.	.	.	.	.	.
	Ranunculus aesontinus	E1	6	.	.	.	.	50	30	100	.	.	.	.	.	.	.	.	.
AF	***Aremonio-Fagion***																		
	Lamium orvala	E1	100	100	100	100	80	50	90	78	14	.	.	.	14	2	.	.	.
	Hacquetia epipactis	E1	78	.	.	.	.	25	40	.	.	.	.	.	14	.	.	.	.
	Isopyrum thalictroides	E1	50	17	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Cardamine enneaphyllos	E1	39	.	.	.	.	.	20	.	.	.	.	.	.	.	.	.	.
	Cyclamen purpurascens	E1	39	17	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Geranium nodosum	E1	11	.	50	60	.	.	10	.	.	.	.	.	.	.	.	.	.
	Knautia drymeia subsp. drymeia	E1	.	.	.	40	20	50	10	.	14	.	25	.	100	.	.	.	.
	Euphorbia carniolica	E1	.	.	.	20	.	25	.	.	.	.	25	.	14	.	.	.	.
	Anemone trifolia	E1	.	.	.	.	.	.	60	.	.	.	.	.	.	.	.	.	.

	Successive number (Zaporedna številka)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Omphalodes verna	E1	.	.	.	.	.	.	20	.	.	.	.	.	.	.	.	.	.
	Cardamine trifolia	E1	.	.	.	.	.	.	10	11	.	.	.	.	.	.	.	.	.
	Helleborus niger	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Potentilla carniolica	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Scopolia carniolica	E1	.	.	.	.	.	.	.	.	.	.	.	.	29	.	.	.	.
FS	***Fagetalia sylvaticae***																		
	Symphytum tuberosum	E1	94	100	75	100	.	100	30	67	14	.	.	.	71	4	.	.	.
	Lilium martagon	E1	83	17	.	.	.	.	.	33	.	.	.	.	.	.	.	.	.
	Polygonatum multiflorum	E1	83	17	.	.	.	75	40	56	.	25	.	.	14	12	.	.	.
	Pulmonaria officinalis	E1	83	.	100	100	40	50	40	33	.	.	13	.	14	.	.	.	.
	Cardamine bulbifera	E1	78	33	.	80	20	.	10	11	.	.	.	.	.	.	.	.	.
	Carpinus betulus	E3b	78	17	50	30	.	.	.	56	.	.	.	.	.	.	.	.	.
	Carpinus betulus	E3a	67	33	100	70	40	50	20	100	.	.	.	.	.	.	.	.	.
	Carpinus betulus	E2b	56	.	.	20	.	25	10	22	.	25	.	.	.	2	.	.	.
	Carpinus betulus	E2a	28	.	25	40	20	.	.	22	14	.	.	.	.	.	.	.	.
	Carpinus betulus	E1	.	.	.	.	.	25	10	33	.	.	13	.	.	.	.	.	.
	Corydalis cava	E1	67	17	.	.	40	.	10	.	.	.	.	.	.	.	.	.	.
	Asarum europaeum subsp. caucasicum	E1	50	17	100	30	.	25	60	.	.	.	.	.	.	.	.	.	.
	Brachypodium sylvaticum	E1	50	50	75	100	100	75	70	.	86	25	13	.	100	10	.	.	.
	Viola reichenbachiana	E1	50	50	.	.	.	75	30	67	57	.	.	.	14	4	3	.	.
	Sambucus nigra	E3a	0	33	.	.	40	.	.	.	.	.	.	.	.	.	.	.	.
	Sambucus nigra	E2b	28	100	50	40	80	50	70	.	.	25	50	45	57	48	9	.	33
	Sambucus nigra	E2a	44	33	50	60	60	25	40	11	.	.	75	.	.	.	.	.	.
	Sambucus nigra	E1	6	17	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Heracleum sphondylium	E1	39	33	25	40	20	25	30	.	.	.	.	.	14	.	.	.	.
	Allium ursinum	E1	33	.	75	10	60	.	.	100	.	.	13	.	.	2	.	.	.
	Galeobdolon flavidum	E1	28	17	.	.	.	.	80	.	.	.	.	.	.	2	.	.	.
	Galeobdolon montanum	E1	28	.	25	90	60	25	.	67	.	25	.	18	57	2	.	.	17
	Mercurialis perennis	E1	28	.	.	20	.	.	10	33	.	.	.	.	14	.	.	.	.
	Euphorbia dulcis	E1	22	33	100	30	.	50	20	.	.	.	.	.	.	.	.	.	.
	Fagus sylvatica	E3b	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Fagus sylvatica	E3a	6	.	.	.	20	.	.	.	.	.	.	.	.	.	.	.	.
	Fagus sylvatica	E2b	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Fagus sylvatica	E2a	11	.	.	.	.	25	10	.	.	.	.	.	.	.	.	.	.
	Fagus sylvatica	E1	.	.	25	0	20	0	.	.	.	.	.	.	.	.	.	.	.
	Fraxinus excelsior	E3b	17	.	25	70	100	50	50	.	.	.	.	.	71	.	.	.	.
	Fraxinus excelsior	E3a	.	17	25	40	.	50	80	.	.	.	13	27	.	12	31	.	.
	Fraxinus excelsior	E2b	6	17	.	70	.	50	90	.	.	50	50	9	71	.	.	.	.
	Fraxinus excelsior	E2a	.	.	.	90	40	50	90	.	.	75	75	.	.	.	.	.	.
	Fraxinus excelsior	E1	6	.	25	60	40	25	60	.	.	75	13	.	.	.	.	.	.
	Tilia cordata	E3b	11	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Tilia cordata	E3a	6	.	.	.	20	.	.	.	.	.	.	.	.	.	.	.	.
	Tilia cordata	E2b	6	.	25	.	20	.	30	.	.	.	.	.	.	.	.	.	.
	Tilia cordata	E2a	6	.	25	.	20	.	20	.	.	25	13	.	.	.	.	.	.
	Tilia cordata	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Carex sylvatica	E1	11	.	.	60	.	75	20	33	86	.	13	.	.	8	.	.	.
	Lathyrus vernus	E1	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Prunus avium	E3b	11	17	25	10	.	.	.	.	14	.	.	.	.	.	.	.	.
	Prunus avium	E3a	.	33	.	.	20	25	.	.	43	.	13	.	.	8	6	.	.
	Prunus avium	E2b	.	17	.	.	.	.	10	.	14	.	25	.	.	.	.	.	.
	Prunus avium	E2a	.	33	.	20	.	25	.	.	.	.	.	.	.	.	.	.	.
	Prunus avium	E1	6	17	.	10	20	50	10	.	57	50	13	.	.	.	.	.	.
	Salvia glutinosa	E1	11	17	25	100	40	50	40	.	71	.	.	.	.	.	3	.	.
	Circaea lutetiana	E1	6	17	.	30	.	50	30	.	.	.	13	18	14	17	.	27	83
	Daphne mezereum	E2a	6	.	.	.	.	.	30	.	.	.	13	18	.	.	.	.	.
	Dryopteris filix-mas	E1	6	.	.	.	.	.	20	.	.	.	13	.	.	33	3	.	.
	Euphorbia amygdaloides	E1	6	.	.	.	.	.	10	.	14	.	.	.	43	.	.	.	.
	Galium laevigatum	E1	6	.	.	.	20	25	.	.	.	.	.	.	.	.	.	.	.
	Melica nutans	E1	6	.	.	.	.	.	10	.	.	25	.	.	.	.	.	.	.
	Neottia nidus-avis	E1	6	.	.	10	.	.	.	.	.	.	.	.	.	.	.	.	.
	Ranunculus lanuginosus	E1	6	50	100	100	60	.	30	.	29	.	13	.	86	.	.	.	.
	Actaea spicata	E1	.	.	.	10	.	25	.	.	.	.	.	.	.	.	.	.	.
	Campanula trachelium	E1	.	.	.	10	.	25	30	.	.	.	.	.	.	.	.	.	.
	Scrophularia nodosa	E1	.	.	.	10	60	.	.	.	.	.	13	.	14	2	.	18	33
	Phyteuma spicatum subsp. coeruleum	E1		.	.	10	.	.	10	.	.	.	.	.	.	.	.	.	.
	Sanicula europaea	E1	.	.	.	.	.	50	.	.	29	.	.	.	.	.	.	.	.
	Mycelis muralis	E1	.	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Paris quadrifolia	E1	.	.	.	.	.	25	80	67	.	.	.	.	.	.	3	9	.
	Myosotis sylvatica	E1		.	.	.	.	.	30	.	.	.	.	9	14	.	.	.	.
	Leucojum vernum	E1		.	.	.	.	.	10	.	.	.	13	9	29	2	.	.	.
	Asarum europaeum subsp. europaeum	E1		.	.	.	.	.	.	.	.	.	25	.	14	.	.	.	.
	Petasites albus	E1		.	.	.	.	.	.	.	.	.	.	9	14	.	.	.	.
QP	***Quercetalia pubescenti-petraeae***																		
	Helleborus odorus subsp. istriacus	E1	61	.	25	.	20	25	.	.	.	.	.	.	.	.	.	.	.
	Ruscus aculeatus	E1	44	33	.	.	.	50	.	56	86	.	.	.	.	.	.	.	.
	Lathyrus venetus	E1	28	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Cornus mas	E2b	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Ostrya carpinifolia	E3b	17	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Ostrya carpinifolia	E3a	11	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Acer obtusatum	E2a	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Successive number (Zaporedna številka)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Acer obtusatum	E1	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Fraxinus ornus	E3a	11	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Fraxinus ornus	E2b	.	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Fraxinus ornus	E2a	.	17	.	.	.	25	10	.	.	.	13	.	.	2	.	.	.
	Fraxinus ornus	E1	.	.	.	.	.	50	.	.	.	.	.	.	.	.	.	.	.
	Cornus mas	E2a	11	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Sesleria autumnalis	E1	11	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Aristolochia lutea	E1	6	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Asparagus tenuifolius	E1	6	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Convallaria majalis	E1	6	.	.	.	20	.	.	.	.	25	.	.	.	.	.	.	.
	Mercurialis ovata	E1	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Tamus communis	E1	6	.	.	.	.	.	.	.	71	.	.	.	14	17	.	.	.
	Carex flacca	E1	.	.	.	.	.	.	.	.	57	25	38	.	.	.	.	.	.
	Quercus cerris	E2a	.	.	.	10	.	.	.	.	.	.	.	.	.	.	.	.	.
	Quercus cerris	E3b	.	.	75	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Quercus cerris	E1	.	.	.	10	.	.	.	.	.	25	.	.	.	.	.	.	.
	Aristolochia pallida	E1	.	.	.	.	.	.	.	.	43	.	.	.	.	.	.	.	.
	Buglossoides purpurocaerulea	E1	.	.	.	.	.	.	.	.	29	.	.	.	.	.	.	.	.
	Quercus pubescens	E3a	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
	Quercus pubescens	E1	.	.	.	.	.	.	.	.	29	.	.	.	.	.	.	.	.
	Carpinus orientalis	E21	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
	Orchis purpurea	E1	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
	Sorbus aria	E2b	.	.	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
QR	***Quercetalia roboris***																		
	Betonica officinalis	E1	.	.	.	10	.	75	10	.	.	50	38	.	.	.	.	.	.
	Rubus hirtus	E2a	.	.	.	.	.	25	.	.	.	.	13	.	.	.	.	.	.
	Castanea sativa	E1	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
	Serratula tinctoria	E1	.	.	.	.	.	.	.	.	14	50	.	.	29	.	.	.	.
	Hieracium racemosum	E1	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
	Potentilla erecta	E1	.	.	.	.	.	.	.	.	.	.	13	.	.	4	.	.	.
	Populus tremula	E3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9	.	.
	Spiraea salicifolia	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	36	.
QF	***Querco-Fagetea***																		
	Anemone nemorosa	E1	100	83	100	90	60	75	50	89	.	25	13	.	57	2	.	9	.
	Hedera helix	E3a	61	100	75	10	60	50	30	44	.	.	25	.	.	.	.	.	.
	Hedera helix	E1	94	100	75	20	80	100	100	67	100	25	88	9	43	17	3	.	.
	Ranunculus ficaria	E1	83	100	100	100	60	25	60	89	71	50	63	9	86	4	.	18	.
	Corylus avellana	E3a	78	50	75	60	60	.	.	11	.	.	.	.	.	.	.	.	.
	Corylus avellana	E2b	28	83	75	70	100	50	30	56	14	25	25	.	.	6	9	18	.
	Corylus avellana	E2a	6	17	25	40	.	.	40	22	.	25	.	.	.	.	.	.	.
	Corylus avellana	E1	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Gagea lutea	E1	78	17	100	80	40	.	10	.	.	.	.	.	.	.	.	.	.
	Hepatica nobilis	E1	78	.	25	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Anemone ranunculoides	E1	72	33	.	60	20	.	20	33	.	.	13	.	.	.	.	.	.
	Lathraea squamaria	E1	67	17	50	20	.	.	.	.	.	.	.	.	.	.	.	.	.
	Acer campestre	E3b	61	50	50	50	.	.	.	11	14	.	.	.	.	.	.	.	.
	Acer campestre	E3a	61	100	75	40	60	25	.	22	29	.	.	.	.	.	.	.	.
	Acer campestre	E2b	61	50	100	50	60	25	10	44	86	25	13	18	29	4	6	.	.
	Acer campestre	E2a	50	67	75	80	80	50	70	33	71	100	13	.	.	.	.	.	.
	Acer campestre	E1	33	50	75	30	40	.	30	56	71	25	13	.	.	.	.	.	.
	Veratrum nigrum	E1	39	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Orobanche hederae	E1	33	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Carex digitata	E1	28	17	25	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Scilla bifolia	E1	22	17	100	.	60	25	.	11	.	.	.	.	.	.	.	.	.
	Ulmus minor	E3b	11	33	.	10	.	.	.	44	.	.	.	.	.	.	.	.	.
	Ulmus minor	E3a	17	33	.	10	.	.	.	67	29	.	.	.	.	10	6	.	.
	Ulmus minor	E2b	.	.	.	20	.	.	.	67	29	.	.	.	.	.	.	.	17
	Ulmus minor	E2a	6	50	.	10	.	.	.	100	43	.	.	.	.	.	.	.	.
	Ulmus minor	E1	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Clematis vitalba	E3a	11	.	.	.	40	.	.	.	.	.	.	.	.	.	.	.	.
	Clematis vitalba	E2	6	.	.	10	.	25	10	.	14	.	13	.	.	2	.	.	.
	Clematis vitalba	E1	.	.	.	.	.	25	20	.	.	.	.	.	.	.	.	.	.
	Malus sylvestris	E3b	11	.	.	10	.	.	.	.	.	.	.	.	.	.	.	.	.
	Malus sylvestris	E3a	6	.	.	40	.	.	10	11	14	.	.	.	.	.	.	.	.
	Malus sylvestris	E2b	6	.	.	.	.	50	.	.	.	25	.	.	.	.	.	.	.
	Malus sylvestris	E2a	6	.	.	10	.	0	.	.	14	25	.	.	.	.	.	.	.
	Pyrus pyraster	E3b	11	.	.	20	.	25	.	.	14	.	.	.	.	.	.	.	.
	Pyrus pyraster	E3a	.	.	.	10	.	.	.	.	.	25	.	.	.	.	.	.	.
	Pyrus pyraster	E2b	.	.	.	20	.	.	.	.	.	.	.	.	.	.	.	9	.
	Pyrus pyraster	E2a	.	.	25	10	.	25	.	.	.	.	.	.	.	.	.	.	.
	Quercus petraea	E3b	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Quercus petraea	E3a	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Quercus petraea	E1	6	17	.	.	.	25	.	.	14	.	.	.	.	2	.	.	.
	Vinca minor	E1	11	.	.	.	.	.	40	44	.	.	.	.	.	.	.	.	.
	Rosa arvensis	E2a	6	17	50	30	.	25	.	.	.	.	.	.	.	2	.	.	.
	Listera ovata	E1	6	.	75	10	.	25	70	22	57	.	38	9	43	.	.	.	.
	Cerastium sylvaticum	E1	6	.	50	50	60	50	30	.	.	.	13	.	.	2	3	.	17
	Carex pilosa	E1	6	.	.	.	.	.	.	22	.	.	.	.	.	.	.	.	.
	Crataegus curvisepala	E2b	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Moehringia trinervia	E1	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Successive number (Zaporedna številka)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Viola alba subsp. alba	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Stellaria holostea	E1	.	.	.	10	.	.	.	.	.	.	.	.	.	.	.	.	.
	Carex montana	E1	.	.	.	.	.	25	10	.	.	.	.	.	.	.	.	.	.
	Dactylorhiza fuchsii	E1	.	.	.	.	.	25	20	.	.	.	.	.	.	.	.	9	.
	Ilex aquifolium	E2a	.	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Lonicera xylosteum	E2a	.	.	.	.	.	25	10	.	.	.	.	9	14	2	.	.	.
	Platanthera chlorantha	E1	.	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Carex umbrosa	E1	.	.	.	.	.	.	20	.	.	.	.	.	.	4	.	.	.
	Ranunculus casubicus	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Viola riviniana	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Cruciata glabra	E1	.	.	.	.	.	.	.	.	.	.	13	9	.	.	.	.	.
	Rasnunculus auricomus	E1	.	.	.	.	.	.	.	.	.	.	.	18	.	.	.	9	.
QI	***Quercetea ilicis***																		
	Rosa sempervirens	E2	.	.	.	.	.	.	.	.	29	.	.	.	.	.	.	.	.
	Asparagus acutifolius	E2a	.	.	.	.	.	.	.	.	29	.	.	.	.	.	.	.	.
	Laurus nobilis	E2b	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
	Rubia peregrina	E1	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
EP	***Erico-Pinetea***																		
	Carex ornithopoda	E1	.	.	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Molinia caerulea subsp. arundinacea	E1	.	.	.	.	.	25	.	.	14	.	13	.	.	6	9	.	.
	Pinus sylvestris	E3b	.	.	.	.	.	.	10	.	.	.	13	.	.	2	.	.	.
	Pinus sylvestris	E2b	.	.	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
	Carex alba	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
VP	***Vaccinio-Piceetea***		.																
	Aposeris foetida	E1	56	.	75	60	.	25	20	.	.	.	.	.	14	.	.	.	.
	Picea abies	E3a	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Picea abies	E2a	.	.	.	.	.	.	.	.	.	.	38	.	29	2	.	.	.
	Picea abies	E1	.	.	.	10	.	.	.	.	.	.	13	.	.	.	.	.	.
	Oxalis acetosella	E1	.	.	50	.	.	25	10	.	.	.	.	.	.	.	6	.	.
	Abies alba	E2a	.	.	25	.	.	.	.	.	.	.	.	.	14	.	.	.	.
	Abies alba	E3b	.	.	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Abies alba	E1	.	.	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Gentiana asclepiadea	E1	.	.	.	30	.	25	.	.	.	.	.	.	.	.	.	.	.
	Calamagrostis arundinacea	E1	.	.	.	.	.	25	20	.	.	.	.	.	.	.	.	.	.
	Dryopteris dilatata	E1	.	.	.	.	.	25	10	.	.	.	.	.	.	2	.	.	.
	Dryopteris assimilis	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	18	.
	Valeriana tripteris	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Veronica urticifolia	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
RP	***Rhamno-Prunetea***																		
	Ligustrum vulgare	E2b	11	.	25	20	20	.	10	11	14	25	.	.	14	.	.	.	.
	Ligustrum vulgare	E2a	78	50	50	60	40	100	60	22	71	50	13	9	.	21	.	.	.
	Crataegus laevigata	E3a	61	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Crataegus laevigata	E2b	33	.	.	.	.	50	.	89	29	.	.	.	.	.	.	55	.
	Crataegus laevigata	E2a	6	17	.	.	.	50	.	33	.	.	.	.	.	.	.	.	.
	Euonymus europaea	E3a	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Euonymus europaea	E2b	33	.	25	20	80	25	10	.	29	.	38	.	57	.	.	.	.
	Euonymus europaea	E2a	44	67	100	60	80	50	60	56	43	25	75	36	.	17	9	18	.
	Euonymus europaea	E1	22	17	25	10	.	25	10	.	.	25	.	.	.	.	.	.	.
	Cornus sanguinea	E3a	6	17	.	.	20	.	10	.	57	.	.	.	.	.	.	.	.
	Cornus sanguinea	E2b	17	17	50	60	80	.	60	.	100	.	25	18	57	60	22	.	17
	Cornus sanguinea	E2a	28	50	75	90	80	50	90	11	71	75	75	.	.	.	.	.	.
	Cornus sanguinea	E1	.	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Crataegus monogyna	E3a	6	17	25	30	.	75	.	.	57	.	.	.	.	.	.	.	.
	Crataegus monogyna	E2b	22	50	75	70	40	50	.	11	86	75	25	9	.	10	3	.	.
	Crataegus monogyna	E2a	17	17	50	90	40	50	10	22	43	50	13	.	.	.	.	.	.
	Rhamnus catharticus	E2b	6	.	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
	Rhamnus catharticus	E2a	.	17	.	.	.	.	10	.	29	.	38	64	.	12	3	9	.
	Rhamnus catharticus	E1	.	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Berberis vulgaris	E2a	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Viburnum opulus	E2b	.	.	.	.	60	25	20	11	.	25	88	.	.	.	.	.	.
	Viburnum opulus	E2a	.	50	75	80	40	100	60	56	.	75	100	82	86	38	16	82	50
	Viburnum opulus	E1	.	.	.	.	.	.	30	.	.	.	.	.	14	.	.	.	.
	Prunus spinosa	E2b	.	17	.	30	20	50	.	.	100	25	13	.	.	.	.	.	.
	Prunus spinosa	E2a	.	17	50	80	20	25	10	.	86	75	.	.	.	.	.	9	.
	Rubus fruticosus agg.	E2b	.	.	.	10	.	.	10	.	29	.	.	.	.	.	3	.	.
	Rubus ulmifolius	E2b	.	.	.	.	.	.	.	.	43	.	.	.	.	35	.	.	.
	Sorbus aucuparia	E2	.	.	.	.	.	.	.	.	.	.	.	.	14	.	.	.	.
	Viburnum lantana	E2b	.	.	.	.	.	25	10	.	.	.	.	.	.	4	.	.	.
	Rosa canina agg.	E2b	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
MuA	***Mulgedio-Aconitetea***																		
	Aconitum lycoctonum	E1	17	17	.	80	20	0	10	.	.	.	.	.	.	2	.	.	.
	Athyrium filix-femina	E1	11	.	.	10	20	50	50	11	.	.	25	18	14	17	6	55	.
	Senecio nemorensis	E1	11	.	.	50	.	50	10	.	.	.	.	.	.	.	.	.	.
	Senecio ovatus	E1	6	.	.	30	.	.	10	.	.	25	.	.	.	.	.	.	.
	Veratrum album s. lat.	E1	.	.	75	90	20	.	10	.	.	.	38	18	43	.	.	18	33
	Aconitum variegatum	E1	.	.	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Doronicum austriacum	E1	.	.	.	10	.	.	.	.	.	.	.	.	.	.	.	9	.
	Silene dioica	E1	.	.	.	.	20	.	10	.	.	.	.	.	.	.	.	.	.
	Chaerophyllum hirsutum	E1	.	.	.	.	.	.	50	.	.	.	50	27	100	.	.	.	.
	Stellaria nemorum s.str.	E1	.	.	.	.	.	.	10	.	.	.	13	.	71	.	.	.	.

	Successive number (Zaporedna številka)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Aconitum degenii subsp. paniculatum	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Geum rivale	E1	.	.	.	.	.	.	.	.	.	.	38	36	29	.	.	.	.
	Carduus personata	E1	.	.	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
	Ribes uva-crispa	E1	.	.	.	.	.	.	.	.	.	.	.	.	14	.	.	.	17
EA	***Epilobietea angustifolii***																		
	Stachys sylvatica	E1	6	17	.	60	60	25	30	.	.	25	13	.	86	.	.	.	.
	Arctium nemorosum	E1	.	.	25	70	.	.	.	.	.	.	.	.	.	.	.	.	.
	Fragaria vesca	E1	.	.	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Arctium minus	E1	.	.	.	30	20	50	10	.	.	.	13	.	.	.	.	.	.
	Eupatorium cannabinum	E1	.	.	.	10	20	.	30	.	14	25	63	45	43	10	3	.	.
	Solanum dulcamara	E1	.	.	.	.	20	25	30	.	.	25	50	9	.	56	25	55	67
	Galeopsis speciosa	E1	.	.	.	.	20	25	30	.	.	.	38	.	.	.	.	.	.
	Bromus ramosus subsp. benekenii	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Galeopsis pubescens	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Rubus idaeus	E2a	.	.	.	.	.	.	.	.	.	.	25	.	.	.	3	.	.
	Tussilago farfara	E1	.	.	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
TG	***Trifolio-Geranietea***																		
	Campanula rapunculoides	E1	17	.	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Lilium bulbiferum	E1	.	.	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Vincetoxicum hirundinaria	E1	.	.	.	.	.	25	.	.	.	.	.	.	.	2	.	.	.
	Viola hirta	E1	.	.	.	.	.	.	10	.	14	.	.	.	.	.	.	.	.
FB	***Festuco-Brometea***																		
	Carlina acaulis	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Muscari neglectum	E1	.	.	.	.	.	.	.	.	29	.	.	.	.	.	.	.	.
	Filipendula vulgaris	E1	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
CD	***Caricetalia davallianae***																		
	Carex lepidocarpa	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Carex davalliana	E1	.	.	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
	Menyanthes trifoliata	E1	.	.	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
	Carex stellulata	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.
	Cladium mariscus	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	2	3	.	.
	Ranunculus flammula	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	18	.
MC	***Montio-Cardaminetea***																		
	Carex flava s. str.	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Cardamine amara	E1	.	.	.	.	.	.	.	22	.	.	38	27	71	13	.	9	33
CU	***Calluno-Ulicetea***																		
	Carex pallescens	E1	.	.	.	.	.	25		.	.	25	.	.	.	2	.	.	.
Ca	***Calthion***																		
	Caltha palustris	E1	.	.	25	.	.	25	60	56	.	.	100	82	86	19	6	64	83
	Angelica sylvestris	E1	.	.	.	30	.	50	60	11	14	75	63	73	29	10	13	9	.
	Scirpus sylvaticus	E1	.	.	.	10	.	.	60	.	.	0	50	27	.	10	9	9	17
	Myosotis scorpioides	E1	.	.	.	.	.	.	10	11	.	25	25	.	.	27	3	82	33
Mo	***Molinietalia caeruleae***																		
	Colchicum autumnale	E1	44	.	75	50	.	75	60	56	14	25	13	.	86	.	.	.	.
	Cirsium oleraceum	E1	.	.	.	70	40	.	80	.	.	75	63	55	43	6	6	9	50
	Equisetum palustre	E1	.	.	.	20	.	.	20	.	.	75	63	.	.	15	9	.	.
	Valeriana dioica	E1	.	.	.	10	.	25	60	33	.	75	88	73	71	33	22	91	33
	Cirsium palustre	E1	.	.	.	10	.	.	.	.	.	25	.	.	.	6	3	.	.
	Cardamine pratensis	E1	.	.	.	.	20	.	.	11	.	.	88	9	43	.	.	55	.
	Ophioglossum vulgatum	E1	.	.	.	.	.	25	20	.	14	25	.	9	.	.	.	.	.
	Selinum carvifolia	E1	.	.	.	.	.	.	30	.	.	.	.	.	.	.	.	.	.
	Juncus effusus	E1	.	.	.	.	.	.	20	.	.	.	50	27	.	.	.	45	.
	Juncus inflexus	E1	.	.	.	.	.	.	20	.	14	25	.	.	.	.	.	.	.
	Oenanthe lachenalii	E1	.	.	.	.	.	.	.	.	29	.	.	.	.	.	.	.	.
	Carex tomentosa	E1	.	.	.	.	.	.	.	.	14	25	25	.	.	.	.	.	.
	Crepis paludosa	E1	.	.	.	.	.	.	.	.	.	.	75	64	57	6	.	.	.
	Dactylorhiza majalis	E1	.	.	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
	Cirsium canum	E1	.	.	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
	Molinia caerulea subsp. caerulea	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	4	13	.	.
	Sanguisorba officinalis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	4	.	.	.
	Thalictrum lucidum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	2	6	.	.
	Gratiola officinalis	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	.
	Juncus conglomeratus	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	18	.
	Thalictrum flavum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	17
FP	***Filipendulo-Petasition***																		
	Filipendula ulmaria	E1	.	.	.	30	20	.	30	22	.	75	75	82	100	33	25	64	67
	Valeriana officinalis	E1	.	.	.	20	20	25	.	.	.	.	50	.	43	10	9	.	.
	Lysimachia vulgaris	E1	.	.	.	.	.	25	30	.	14	25	75	9	14	25	66	81	67
	Lythrum salicaria	E1	.	.	.	.	.	25	20	.	.	.	.	45	.	31	44	18	67
	Mentha aquatica	E1	.	.	.	.	.	.	30	11	.	50	63	64	71	8	9	9	.
	Myosoton aquaticum	E1	.	.	.	.	.	.	10	.	.	.	13	.	.	8	.	.	.
	Symphytum officinale	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	40	9	.	.
	Stachys palustris	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	4	6	.	33
PP	***Potentillo-Polygonetalia***																		
	Ranunculus repens	E1	.	.	.	40	40	25	50	11	.	75	75	73	57	10	9	45	33
	Barbarea vulgaris	E1	.	.	.	20	.	.	10	.	.	.	13	.	14	.	.	.	.
	Plantago major subsp. intermedia	E1	.	.	.	.	.	25	.	.	14	.	.	.	.	.	.	.	.
	Rumex conglomeratus	E1	.	.	.	.	.	.	.	11	.	.	.	.	.	.	.	18	.
	Rumex crispus	E1	.	.	.	.	.	.	.	.	43	.	13	.	.	.	3	.	.
	Duchesnea indica	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	4	3	.	.

	Successive number (Zaporedna številka)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Carex hirta	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	4	.	.	.
	Agrostis stolonifera	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.
MA	***Molinio-Arrhenatheretea***																		
	Allium scorodoprasum	E1	6	.	25	.	20	.	30	.	.	.	.	.	.	.	.	.	.
	Deschampsia cespitosa	E1	.	.	50	70	80	50	70	22	.	100	50	18	86	8	3	.	17
	Crocus albiflorus	E1	.	.	25	20	.	25	20	.	.	.	.	.	.	.	.	.	.
	Anthriscus sylvestris	E1	.	.	25	30	40	.	60	.	.	.	13	.	.	.	.	.	.
	Astrantia major	E1	.	.	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Muscari botryoides	E1	.	.	25	40	.	.	.	.	.	25	.	.	.	.	.	.	.
	Veronica chamaedrys	E1	.	.	.	50	20	.	20	.	.	.	13	.	.	.	.	.	.
	Ajuga reptans	E1	.	.	.	40	20	50	20	56	86	50	38	64	43	.	.	.	.
	Dactylis glomerata s.str.	E1	.	.	.	10	20	25	10	.	14	25	13	.	.	.	.	.	.
	Galium mollugo agg.	E1	.	.	.	10	.	.	.	.	.	.	50	.	.	4	.	.	.
	Poa trivialis	E1	.	.	.	10	60	.	30	.	43	.	38	.	.	4	3	.	.
	Prunella vulgaris	E1	.	.	.	10	.	25	.	.	.	25	.	.	.	.	.	.	.
	Taraxacum officinale	E1	.	.	.	10	40	.	20	.	29	25	.	.	.	.	.	.	.
	Vicia sepium	E1	.	.	.	.	40	.	10	.	.	.	.	.	.	.	.	.	.
	Lysimachia nummularia	E1	.	.	.	.	20	25	10	11	71	.	.	18	29	8	.	.	.
	Veronica serpyllifolia	E1	.	.	.	.	20	.	.	.	.	.	.	.	.	.	.	.	.
	Ranunculus acris	E1	.	.	.	.	.	.	10	.	29	50	13	.	.	.	.	.	.
	Lychnis flos-cuculi	E1	.	.	.	.	.	.	.	.	.	.	13	.	.	2	.	9	17
PM	***Phragmiti-Magnocaricetea***																		
	Galium palustre	E1	.	.	50	10	.	.	10	11	.	75	25	.	.	21	41	82	33
	Lycopus europaeus	E1	.	.	.	50	20	50	20	11	29	100	25	82	29	29	59	82	33
	Glyceria notata (maxima agg.)	E1	.	.	.	10	.	.	.	.	.	.	.	.	.	.	4	.	9	50
	Phalaris arundinacea	E1	.	.	.	.	20	.	10	.	.	.	.	9	.	25	.	18	50
	Iris pseudacorus	E1	.	.	.	.	.	25	.	11	29	0	38	.	.	50	47	.	50
	Carex elata	E1	.	.	.	.	.	25	20	22	.	.	.	.	.	27	100	64	50
	Carex randalpina	E1	.	.	.	.	.	.	10	.	.	25	50	.	.	.	.	.	.
	Allisma plantago-aquatica	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	2	.	.	17
	Carex vesicaria	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	2	.	73	33
	Equisetum fluviatile	E1	.	.	.	.	.	.	10	.	.	.	.	9	.	.	.	.	.
	Carex vulpina	E1	.	.	.	.	.	.	.	11	.	.	.	.	.	.	.	.	.
	Carex elongata	E1	.	.	.	.	.	.	.	.	14	.	.	55	.	13	.	100	50
	Carex acuta	E1	.	.	.	.	.	.	.	.	.	75	63	.	.	.	3	.	.
	Carex riparia	E1	.	.	.	.	.	.	.	.	.	50	.	.	.	6	3	.	100
	Carex rostrata	E1	.	.	.	.	.	.	.	.	.	25	13	.	.	.	.	.	.
	Poa palustris	E1	.	.	.	.	.	.	.	.	.	25	.	.	.	10	3	.	.
	Carex acutiformis	E1	.	.	.	.	.	.	.	.	.	.	38	.	.	100	19	36	.
	Carex paniculata	E1	.	.	.	.	.	.	.	.	.	.	25	.	.	2	.	.	.
	Phragmites australis	E1	.	.	.	.	.	.	.	.	.	.	13	.	.	19	41	.	50
	Peucedanum palustre	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	8	9	73	83
	Scutellaria gelericulata	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	8	16	.	.
	Berrula erecta	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	6	.	.	.
	Nasturtium officinale	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	6	6	.	.
	Typha latifolia	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	6	6	.	.
	Carex otrubae	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	2	3	.	.
	Scoenoplectus lacustris	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9	.	.
	Sparganium erectum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	33
FC	***Filipendulo-Convolvuletea***																		
	Calystegia sepium	E1	.	.	.	.	.	.	10	.	.	25	.	.	.	19	28	.	.
	Epilobium parviflorum	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Fallopia japonica	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Epilobium hirsutum	E1	.	.	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
	Cucubalus baccifer	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	4	.	.	.
BT	***Bidentetea tripartitetae***																		
	Polygonum hydropiper	E1	.	.	.	.	.	25	.	.	.	.	.	18	14	12	.	9	33
	Bidens frondosa	E1	.	.	.	.	.	25	.	.	.	.	.	.	.	2	13	.	.
	Bidens tripartita	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	10	6	.	.
AV	***Artemisietea vulgaris***																		
	Artemisia vulgaris	E1	.	.	.	.	20	.	.	.	.	.	.	.	.	.	3	.	.
	Echinops sphaerocephalus	E1	.	.	.	.	20	.	.	.	.	.	.	.	.	.	.	.	.
	Silene latifolia subsp. alba	E1	.	.	.	.	20	.	.	.	.	.	.	.	.	.	.	.	.
	Rumex obtusifolius	E1	.	.	.	.	.	.	10	.	14	.	.	.	.	.	.	.	.
	Asplenium viride	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Artemisia verlotiorum	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	.
	Cirsium vulgare	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9	.
GU	***Galio-Urticetea***																		
	Aegopodium podagraria	E1	94	100	.	.	.	50	90	33	.	.	.	82	100	.	.	.	.
	Glechoma hederacea	E1	39	83	75	40	60	50	30	22	14	.	13	.	.	4	6	9	17
	Geum urbanum	E1	28	33	50	80	80	75	80	.	43	50	.	.	.	10	6	.	.
	Viola odorata	E1	17	.	.	.	20	25	.	.	14	.	.	.	.	2	.	.	.
	Alliaria petiolata	E1	11	33	25	10	100	.	10	.	.	.	.	.	.	.	.	.	.
	Chaerophyllum aureum	E1	6	.	25	30	20	.	.	.	.	.	.	.	.	.	.	.	.
	Lamium maculatum	E1	6	.	.	10	40	.	10	.	.	.	25	.	86	2	.	9	.
	Parietaria officinalis	E1	6	50	.	.	20	.	10	.	.	.	.	.	.	.	.	.	.
	Galium aparine	E1	.	17	50	.	60	.	30	.	.	.	25	.	.	19	.	.	.
	Impatiens glandulifera	E1	.	.	25	.	60	.	.	.	.	.	25	.	.	.	.	.	.
	Helianthus tuberosus	E1	.	.	.	.	20	.	10	.	.	.	.	.	.	.	.	.	.
	Solidago gigantea	E1	.	.	.	.	80	.	40	.	.	.	13	9	43	4	3	.	50

	Successive number (Zaporedna številka)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Urtica dioica	E1	.	.	.	.	80	.	20	11	.	.	25	55	71	35	28	9	67
	Impatiens parviflora	E1	.	.	.	.	40	.	10	.	.	.	.	18	14	.	.	.	.
	Petasites hybridus	E1	.	.	.	.	.	.	90	.	.	.	.	.	100	.	.	.	.
	Solidago canadensis	E1	.	.	.	.	.	.	.	.	.	25	.	.	.	.	3	.	.
SM	***Stellarietea mediae***																		
	Allium vineale	E1	17	.	.	.	.	25	20	.	14	.	.	.	.	.	.	.	.
	Stellaria media s.str.	E1	6	.	25	.	20	.	.	.	.	.	.	.	.	.	.	.	.
	Lapsana communis	E1	.	.	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Chelidonium majus	E1	.	.	.	.	40	.	.	.	.	.	.	.	14	.	.	.	.
	Bromus sterilis	E1	.	.	.	.	40	.	.	.	.	.	.	.	.	.	.	.	.
	Erigeron annuus subsp. annuus	E1	.	.	.	.	20	.	.	.	.	.	.	.	.	.	3	.	.
	Solanum nigrum	E1	.	.	.	.	.	25	.	.	.	.	.	.	.	2	3	.	.
	Plantago major subsp. major	E1	.	.	.	.	.	0	10	.	.	.	.	.	.	.	.	.	.
	Aethusa cynapium	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
TR	***Thlaspietea rotundifolii, Asplenietea trichomanis***																		
	Cardaminopsis arenosa	E1	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
AT	*Polypodium vulgare*	E1	6	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Petasites paradoxus	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Peucedanum verticillare	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
O	**Other species (Druge vrste)**																		
	Robinia pseudoacacia	E3b	83	33	.	10	20	25	.	11	14	.	.	.	.	.	.	.	.
	Robinia pseudoacacia	E3a	17	.	.	10	.	.	.	.	.	.	.	.	.	.	.	.	.
	Robinia pseudoacacia	E2b	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Robinia pseudoacacia	E2a	6	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Prunus insititia	E3b	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Prunus insititia	E3a	.	17	.	20	.	25	.	.	.	.	13	.	.	.	.	.	.
	Prunus insititia	E2b	.	17	.	.	.	.	.	11	14	.	.	.	.	.	.	.	.
	Prunus insititia	E2a	22	33	.	.	.	.	.	22	.	.	25	.	.	.	.	.	.
	Ficus carica	E1	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Narcissus pseudonarcissus	E1	6	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Prunus sp.	E2a	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Spiraea japonica	E2a	6	.	.	.	.	.	.	33	.	.	.	.	.	.	.	.	.
	Malus domestica	E3a	.	.	.	10	.	.	.	.	.	.	.	.	.	2	.	.	.
	Hesperis matronalis	E1	.	.	.	.	20	.	.	.	.	.	.	.	.	.	.	.	.
	Allium sp.	E1	.	.	.	.	.	25	.	.	.	.	.	.	.	.	.	.	.
	Mentha sp.	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Viola sp.	E1	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	27	.
	Quercus rubra	E3b	.	.	.	.	.	.	.	11	.	.	.	.	.	.	.	.	.
	Vitis vinifera	E3a	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
	Carex sp.	E1	.	.	.	.	.	.	.	.	14	.	13	.	57	.	.	.	.
	Juniperus communis	E2a	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
	Trachycarpus fortunei	E1	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.
	Potamogeton sp.	E1	.	.	.	.	.	.	.	.	.	.	13	.	.	.	.	.	.
	Platanus x hispanica	E3b	.	.	.	.	.	.	.	.	.	.	.	.	.	8	6	.	.
	Hottonia palustris	E1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6	.	.
M	**Mosses (Mahovi)**																		
	Ctenidium molluscum	E0	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Plagiomnium undulatum	E0	6	.	.	.	20	50	60	22	14	.	.	9	29	.	.	45	50
	Brachythecium rutabulum	E0	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Homalothecium lutescens	E0	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Isothecium alopecuroides	E0	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	Atrichum undulatum	E0	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Climacium dendroides	E0	.	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.
	Conocephalum conicum	E0	.	.	.	.	.	.	20	.	.	.	.	.	.	.	.	.	.
	Brachythecium sp.	E0	.	.	.	.	.	.	.	.	29	.	.	.	.	.	.	.	.
	Polytrichum formosum	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	18	.
	Plagoimnium cuspidatum	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	18	.
	Plagiomnium affine	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	18	.
	Sphagnum squarrosum	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9	.
	Sphagnum sp.	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9	.
	Mnium hornum	E0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9	.

OrClo *Ornithogalo pyranaici-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 9, relevés 6–9
LoAgcb-R *Lamio orvalae-Alnetum glutinosae* var. *Cardamine bulbifera*, the Reka Valley, this article, Table 9, relevés 10–19
LoAgsb1-R *Lamio orvalae-Alnetum glutinosae* var. *Scilla bifolia*, the Reka Valley, this article, Table 9, 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 Kočevsko 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 region (Pomurje), Accetto (1994, Table 1, relevés 1–6).

NOTULA

Nomenclature correction of the name and rank of the association *Chamaecytiso hirsuti-Quercetum petraeae* Dakskobler 2014 nom. illeg.

Nomenklaturni popravek imena in ranga asociacije *Chamaecytiso hirsuti-Quercetum petraeae* Dakskobler 2014 nom. illeg.

Igor DAKSKOBLER

Some years ago we published a phytosociological analysis of *Quercus petraea* stands, whose herb layer is dominated by *Erica carnea* in the flysch hills of Vipavska Brda and on the margins of the Vrhe plateau (southwestern Slovenia) – Dakskobler (2014). We determined that they are a long-term degradation stage on beech forest sites from the association *Seslerio autumnalis-Fagetum* M. Wraber ex Borhidi 1963. Based on comparisons with similar sessile oak stands from the associations *Melampyro vulgati-Quercetum petraeae* Puncer et Zupančič 1979, *Seslerio autumnalis-Quercetum petraeae* Poldini (1964) 1982 and *Erico carneae-Quercetum petraeae* Krause et Ludwig ex Horvat 1959, the studied stands were classified into the new association *Chamaecytiso hirsuti-Quercetum petraeae*, into the alliance *Carpinion orientalis* Horvat 1958 and into the order *Quercetalia pubescenti-petraeae* Klika 1933. We had overlooked, however, that the same name, *Cytiso hirsuti-Quercetum petraeae* (Stefanović 1964) Pallas 2003 (Bohn & Neuhäusl 2003) or *Cytiso hirsuti-Quercetum petraeae* (Stefanović 1964) Pallas in Bohn et Neuhäusl 2004 (Stupar et al. 2015) was already used for different *Quercus petraea* woods in Bosnia and Herzegovina that belong to the alliance *Castaneo-Quercion* Soó 1964 and the order *Quecetalia roboris* Tüxen 1931. According to the Code of phytosociological nomenclature (Weber et al. 2000, Art. 31, 753–754) the name *Chamaecytiso hirsuti-Quercetum petraeae* Dakskobler 2014 is a later homonym and illegitimate, while *Cytisus hirsutus* is a synonym for *Chamaecytisus hirsutus*.

As it is not possible to find a proper new name for our association, we decided for a change of rank. We subordinated the association *Chamaecytiso hirsuti-Quercetum petraeae* Dakskobler 2014 nom. illeg. to the association *Seslerio autumnalis-Quercetum petraeae* Poldini (1964) 1982 as a new subassociation *Seslerio autumnalis-Quercetum petraeae ericetosum carneae* subass. nov. hoc loco. This also means that we consider the association *Seslerio autumnalis-Quercetum petraeae* in a broader sense, not only as a primary sessile oak community of the Vipava Valley, Karst and Istria, but also including secondary *Quercus petraea* communities of this area on potential beech sites.

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NAVODILA AVTORJEM

Folia biologica et geologica so znanstvena revija IV. razreda SAZU za naravoslovne vede. Objavljajo naravoslovne znanstvene razprave in pregledne članke, ki se nanašajo predvsem na raziskave v našem etničnem območju Slovenije, pa tudi raziskave na območju Evrope in širše, ki so pomembne, potrebne ali primerljive za naša preučevanja.

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Znanstvena razprava zajema celovit opis izvirne raziskave, ki vključuje teoretični pregled tematike, podrobno predstavlja rezultate z razpravo in zaključki ali sklepi in pregled citiranih avtorjev. V izjemnih primerih so namesto literaturnega pregleda dovoljeni viri, če to zahteva vsebina razprave.

Razprava naj ima klasično razčlenitev (uvod, material in metode, rezultati, diskusija z zaključki, zahvale, literatura idr.).

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Razprava gre v tisk, ko jo na predlog uredniškega odbora na seji sprejmeta IV. razred in predsedstvo SAZU.

2. PREGLEDNI ČLANEK

Pregledni članek objavljamo po posvetu uredniškega odbora z avtorjem. Na predlog uredniškega odbora ga sprejmeta IV. razred in predsedstvo SAZU. Članek naj praviloma obsega največ 3 avtorske pole (tj. do 50 tipkanih strani).

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Za razprave ali članke, pisane v slovenščini, mora biti povzetek v angleščini, za razprave ali članke v tujem jeziku ustrezen slovenski povzetek. Povzetek mora biti dovolj obširen, da je tematika jasno prikazana in razumljiva domačemu in tujemu bralcu. Dati mora informacijo o namenu, metodi, rezultatu in zaključkih. Okvirno naj povzetek zajema 10 do 20 % obsega razprave oziroma članka.

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Izvleček mora podati jedrnato informacijo o namenu in zaključkih razprave ali članka. Napisan mora biti v slovenskem in angleškem jeziku.

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Število ključnih besed naj ne presega 10 besed. Predstaviti morajo področje raziskave, podane v razpravi ali članku. Napisane morajo biti v slovenskem in angleškem jeziku.

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Naslov razprave ali članka naj bo kratek in razumljiv. Za naslovom sledi ime/imena avtorja/avtorjev (ime in priimek).

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Pod ključnimi besedami spodaj je naslov avtorja/avtorjev, in sicer akademski naslov, ime, priimek, ustanova, mesto z oznako države in poštno številko, država, ali elektronski poštni naslov.

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Uvod se mora nanašati le na vsebino razprave ali članka.

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Zaključki ali sklepi morajo vsebovati sintezo glavnih ugotovitev glede na zastavljena vprašanja in razrešujejo ali nakazujejo problem raziskave.

13. TABELE, TABLE, GRAFIKONI, SLIKE IPD.

Tabele, table, grafikoni, slike ipd. v razpravi ali članku naj bodo jasne, njihovo mesto mora biti nedvoumno označeno, njihovo število naj racionalno ustreza vsebini. Tabele, table, slike, ilustracije, grafikoni ipd. skupaj z naslovi naj bodo priloženi na posebnih listih. Če so slike v

digitalni obliki, morajo biti pripravljene u zapisu **.tiff** v barvni skali **CMYK** in resoluciji vsaj **300 DPI/inch.** Risane slike pa v zapisu **.eps.**

Pri fitocenoloških tabelah se tam, kjer ni zastopana rastlinska vrsta, natisne pika.

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Uporabljeno literaturo citiramo med besedilom. Citirane avtorje pišemo v kapitelkah. Enega avtorja pišemo » (Priimek leto)« ali »(Priimek leto: strani)« ali »Priimek leto« [npr. (Bukry 1974) ali (Oberdorfer 1979: 218) ali ... Poldini (1991) ...]. Če citiramo več del istega avtorja, objavljenih v istem letu, posamezno delo označimo po abecednem redu »Priimek leto mala črka« [npr. ...Horvatić (1963 a)... ali (Horvatić 1963 b)]. Avtorjem z enakim priimkom dodamo pred priimkom prvo črko imena (npr. R. Tuxen ali J. Tuxen). Več avtorjev istega dela citiramo po naslednjih načelih: delo do treh avtorjev »Priimek, Priimek & Priimek leto: strani« [npr. (Shearer, Papike & Simon 1984) ali Pearce & Cann (1973: 290-300)...]. Če so več kot trije avtorji, citiramo »Priimek prvega avtorja et al. leto: strani« ali »Priimek prvega avtorja s sodelavci leto« [npr. Noll et al. 1996: 590 ali ...Meusel s sodelavci (1965)].

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– **Razprava ali članek:**

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Kajfež, L. & A. Hočevar, 1984: *Klima. Tlatvorni činitelji.* V D. Stepančič: *Komentar k listu Murska Sobota.* Osnovna pedološka karta SFRJ. Pedološka karta Slovenije 1:50.000 (Ljubljana): 7–9.

Le Loeuff, J., E. Buffeaut, M. Martin & H. Tong, 1993: *Decouverte d'Hadrosauridae (Dinosauria, Ornithischia) dans le Maastrichtien des Corbieres (Aude, France).* C. R. Acad. Sci. Paris, t. 316, Ser. II: 1023–1029.

– **Knjiga:**

GORTANI, L. & M. GORTANI, 1905: *Flora Friuliana.* Udine.

Če sta različna kraja založbe in tiskarne, se navaja kraj založbe.

– **Elaborat ali poročilo:**

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Latinska imena rodov, vrst in infraspecifičnih taksonov se pišejo kurzivno. V fitocenoloških razpravah ali člankih se vsi sintaksoni pišejo kurzivno.

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Članek naj bo pisan v formatu RTF z medvrstičnim razmikom 1,5 na A4 (DIN) formatu. Uredniku je treba oddati izvirnik in kopijo ter zapis na disketi 3,5 ali na CD-ROM-u. Tabele in slike so posebej priložene tekstu. Slike so lahko priložene kot datoteke na CD-ROM-u, za podrobnosti se vpraša uredništvo.

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Folia biologica et geologica is a scientific periodical of the Classis IV: Natural history that publishes natural scientific proceedings and review articles referring mainly to researches in ethnic region of ours, and also in Europe and elsewhere being of importance, necessity and comparison to our researches.

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It is the entire description of novel research including the theoretical review of the subjects, presenting in detail the results, conclusions, and the survey of literature of the authors cited. In exceptional cases the survey of literature may be replaced by sources, if the purport requires it.

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The treatise should not be longer than 30 pages, including tables, graphs, figures and others. Much desired are treatises of 20 pages.

The treatises are reviewed by two reviewers, one of them being member of SASA as a rule, the other one a foreign expert.

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It should be short and understandable. It is followed by the name/names of the author/authors (name and surname).

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Kajfež, I. & A. Hočevar, 1984: *Klima. Tlatvorni činitelji.* V D. Stepančič: *Komentar k listu Murska Sobota.* Osnovna pedološka karta SFRJ. Pedološka karta Slovenije 1:50.000 (Ljubljana): 7–9.

Le Loeuff, J., E. Buffeaut, M. Martin & H. Tong, 1993: *Déecouverte d'Hadrosauridae (Dinosauria, Ornithischia) dans le Maastrichtien des Corbieres (Aude, France).* C. R. Acad. Sci. Paris, t. 316, Ser. II: 1023-1029.

– **Book:**

GORTANI, L. & M. GORTANI, 1905: *Flora Friuliana.* Udine.

In case that the location of publishing and printing are different, the location of publishing is quoted.

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PRUS, T., 1999: *Tla severne Istre.* Biotehniška fakulteta. Univerza v Ljubljani. Center za pedologijo in varstvo okolja. Oddelek za agronomijo. Ljubljana. (Elaborat, 10 str.).

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The same rules hold for sources.

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Latin names for order, series, and infraspecific taxa are to be written in italics. All syntaxa written in phytocoenological treatises or articles are to be in italics.

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