

Dedicated to Prof. dr. LJUDEVIT ILIJANIĆ on the occasion of his 70th birthday.

»Saum« (fringe) vegetation (*Trifolio-Geranietea*) in the Republic of Macedonia

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The paper deals with the saum (fringe) vegetation of the Republic of Macedonia. A new suballiance *Lathyro laxiflori-Trifolionion velenovskyi* suball. nova of the *Geranion sanguinei* Tx. in Müller 1962 (*Origanetalia* Müller 1962, *Trifolio-Geranietea* Müller 1962) is described as well as the following associations: the *Lathyro laxiflori-Trifolietum balcanici* ass. nova, the *Chaemaecytiso heuffelii-Trifolietum medii* ass. nova and the *Trifolietum velenovskyi-alpestris* ass. nova. Two communities were found and classified according to the deductive method within the *Vicia varia* community [*Geranion sanguinei*] and the *Vicia tenuifolia* community [*Geranion sanguinei*].

Keywords: Grassland, saum, fringe, vegetation, plant community, phytosociology, Macedonia

Introduction

In the transitional zone from forest to non-forest areas, there are two well-defined vegetation types in the form of two long, narrow belts. The first, which is closer to the forest, is dominated by shrubs and is termed »mantle«, while the one closer to the non-forest vegetation dominated by high stalk species and grasses is called »saum«. Saum or fringe vegetation can be further divided into *Galio-Urticetea* Passarge et Kopecký 1969, a class of the nitrophilous saum communities already known from the Republic of Macedonia (ČARNI et al. 2000), and *Trifolio-Geranietea*, a class of saum vegetation that appears on less nitrophilous sites. The latter was the topic of the present research. Rapid changes in ecological conditions account for the high biodiversity at the forest edge.

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Saum vegetation is well developed in Central Europe, where it was first recognized and described (MÜLLER 1962). Since then, many studies have been made at the regional level (e.g., MÜLLER 1978, MUCINA and KOLBEK 1993, ČARNI 1997) as have several general syntheses on a European scale (DIERSCHKE 1974, VAN GILS 1978, DE FOUCault et al. 1983). However, no data have been collected from SE Europe.

Communities of the *Trifolio-Geranietea* disappear gradually toward the Pannonian Basin and the Mediterranean area (JAKUCS 1970, WENDELBERGER 1986). The distribution of these communities is limited toward the east and south of Europe by seasonal droughts (VAN GILS and KEYSERS 1977). In the study, it was anticipated that *Trifolio-Geranietea* vegetation would appear in the transitional zone from the *Quercus petraea* forests to the submontane beech forests where the ecological conditions are similar to those of vegetation found in Central Europe. However, beech forests occur at an altitude of 1000 meters, which is much higher than in Central Europe.

Some authors disregard *Trifolio-Geranietea* and classify the communities within the forest syntaxa that they fringe, for example, *Geranion sanguinei* within *Quercetalia pubescantis* Klika 1933, *Trifolion medii* within *Carpinion betuli* Issler 1931 or *Fagion* Luquet 1926, and *Melampyro-Holcetalia* within *Quercetalia roboris* R. Tx. 1931 (GÉHU et al. 1988). On the other hand, other researchers suggest classification within the grasslands, for example, *Geranion sanguinei* within *Festuco-Brometea* Br.-Bl. et R. Tx. ex Klika et Hadač 1944, *Trifolion medii* within *Molinio-Arrhenatheretea* R. Tx. 1937 em. R. Tx. 1970, and *Melampyro-Holcetalia* within *Calluno-Ulicetea* Br.-Bl. et R. Tx. ex Klika et Hadač 1944 (VAN GILS 1978).

BRAUN-BLANQUET established the association on a floristic-sociological basis, but since the floristic-sociological characters of an association are supposed to reflect all other characters, a uniform floristic-sociological association might be expected to be structurally uniform as well (WESTHOFF et al. 1973). For instance, TÜXEN (1952) first described the order of shrub and mantle communities *Prunetalia spinosae* within the class of woodland communities of *Querco-Fagetea*, but later he classified it within the separate class *Rhamno-Prunetea* (TÜXEN 1962).

PIGNATTI et al. (1995) classified *Trifolio-Geranietea* within the ecocline classes that appear in gradient environments, and consequently they widely overlap with other classes. *Trifolio-Geranietea* is connected with *Querco-Fagetea* on the one hand and with *Molinio-Arrhenatheretea* or *Festuco-Brometea* on the other. Ecocline classes are rich in species and associations and have unclear boundaries. They are often difficult to recognize. It was decided to follow the widely-accepted syntaxonomical scheme considering *Trifolio-Geranietea* as an independent class.

A similar situation occurs within the riverine forests of *Salicetum albae* Issler 1926. In these communities, only the species *Salix alba* can be taken as a characteristic species of the association, alliance, order, or even of the class. The majority of species in these communities are herbs such as *Angelica sylvestris*, *Galium aparine*, *Phalaris arundinacea*, *Rubus caesius*, and *Urtica dioica*. However, we

classify these communities within the class of riverine forest of *Salicetea purpureae* Moor 1958, since these communities are forests and not within the class of nitrophilous high stalk communities of *Galio-Urticetea* Passarge ex Kopecký 1969, although the majority of species can be classified within the latter class.

Trifolio-Geranietea is divided into two orders: *Origanetalia* (calciphilous and neutrophilous communities) and *Melampyro-Holcetalia* Passarge 1979 (acidophilous communities). *Origanetalia* is divided into two alliances: *Trifolion medii* T. Müller 1962 (mesophilous communities) and *Geranion sanguinei* (thermophilous communities). On the territory under study, only the latter was found.

There is much data on the vegetation of the Republic of Macedonia, for example, EM (1961, 1964), MATVEJEVA (1982), MICEVSKI (1957, 1965, 1967, 1970, 1971, 1978, 1994), MICEVSKI and MATEVSKI (1984), RIZOVSKI (1970), RIZOVSKI and DŽEKOV (1990) to mention only some studies, but forest edge vegetation has hitherto been neglected. The purpose of our work was to sample this type of vegetation. Attempts were made to determine its floristic composition, its syn-taxonomic position, and its distribution in the region and on a larger scale.

Investigated area

The Republic of Macedonia is situated in the center of the Balkan peninsula, bordering FR Yugoslavia in the north, Bulgaria in the east, Greece in the south, and Albania in the west. (Fig. 1)

In Macedonia, submediterranean, Mediterranean, and mountainous climates can be found. The research was carried out mainly in the mountainous zone, since the conditions there are more propitious for the development of this type of vegetation. In the summer there is a lack of precipitation in the lowlands, and the so-called »hydric stress« that is unfavorable to vegetation occurs quite often. It is a limiting factor for the development of saum vegetation (VAN GILS and KEYSERS 1977). If we compare the climates of Skopje, Berovo, and Mavrovo (Fig. 2), it can be seen that conditions regarding temperature and precipitation are the most severe in Skopje. Skopje has an altitude of 240 m and 502 mm of precipitation. In summer, a well-pronounced hydric stress is indicated. The situation is better in Berovo with 632 mm of precipitation at an altitude of 824 m, where hydric stress does not occur. The same also applies to Mavrovo, situated at an altitude of 1240 m with a precipitation of 1100 mm. The last two diagrams present climatic conditions that facilitate the development of saum communities. At the same time, it should be mentioned that relevés were sampled in areas close to lakes (Berovo, Mavrovo, Ohrid, Prespansko) where the local climate is more humid.

The potential natural vegetation in the lowlands is *Querco cocciferae-Carpinetum orientalis macedonicum* Rud. 1939 apud Ht 1946, *Juglando-Platanetum orientalis* Em et Džekov 1961, *Quercetum pedunculiflorae macedonicum* Em 1965, *Querco-Carpinetum orientalis* H-ić 1939, and *Quercetum frainetto-cerris macedonicum* Oberdorfer 1948 em. Ht 1959, but here *Trifolio-Geranietea* saum does not appear. The species that are elements of *Trifolio-Geranietea* are spread in the forest and do not form saum in a physiognomic sense.

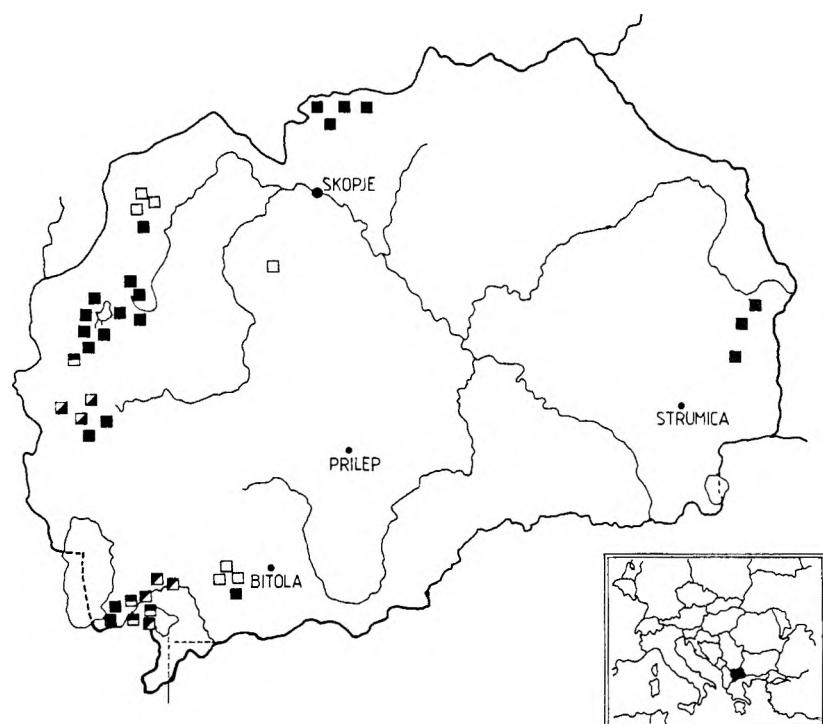


Fig. 1. Localities of the relevés in the Republic of Macedonia. ■ *Trifolietum velevnovski-alpestris*, □ *Lathyro-Trifolietum balcanici*, ■ *Chamaecytiso heuffelli-Trifolietum medi*, ▨ *Vicia tenuifolia-comm.* and ▨ *Vicia varia-comm.*

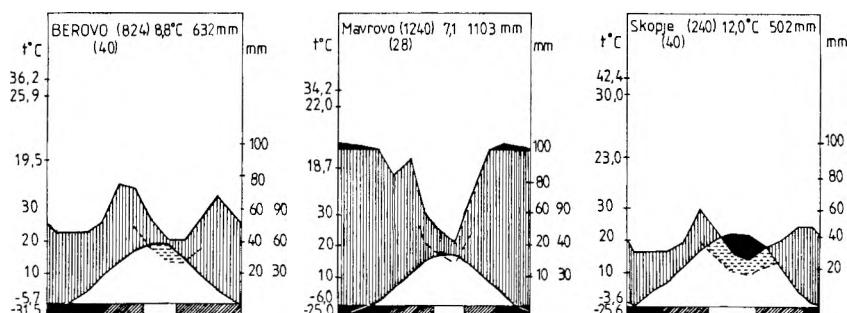


Fig. 2. The climatic diagrams for Berovo, Mavrovo and Skopje (after FILIPOVSKI et al. 1996).

The research was carried out in the upper zone of *Quercetum frainetto-cerris*, in the zones of *Orno-Quercetum petraeae* and *Festuco heterophyliae-Fagetum*, and on sites of *Luzulo-Fagetum*.

Ass. *Quercetum frainetto-cerris macedonicum* Oberd. em. Ht 1959 (Tab. 1/1–3) of *Quercion frainetto* Ht 1954 is spread over silicate bedrock at altitudes of 600 to 900 meters. The associations of this alliance are climazonal in the subcontinental area from the Carpathian Mountains to Metohija and from the Black Sea to the Drina River. In the communities, the dominant species is *Quercus frainetto* (syn. *Quercus conferta*) and occasionally also *Quercus cerris*. It is characteristic of these forests that only a few endemic species appear since the cold winters do not allow submediterranean species to develop and the summer droughts are unsuitable for mesophilous plant species. (RIZOVSKI and DŽEKOV 1990).

Ass. *Orno-Quercetum petraeae* Em 1968 of the *Quercion petraeae-cerris* (Lakušić) Lakušić et Jovanović 1980 (Tab. 1/4–9) is a thermophilous association spread on silicate bedrock throughout the Republic of Macedonia at altitudes from 900 to 1100 meters. In the associations of the alliance, the dominant species is *Quercus petraea*, distributed across Bosnia, Montenegro, Serbia, and Macedonia. These forests are found above those previously mentioned.

Both alliances are of *Quercetalia pubescens*, the order of thermophilous and xerophilous forests of southeastern Europe.

Ass. *Festuco heterophyllae-Fagetum* Em 1965 (Tab. 1/11) is a submontane beech forest of *Fagion moesicae* Blečić et Lakušić 1970 found mainly at altitudes from 1000 to 1200 meters on carbonate as well as silicate bedrock. The area of distribution of this alliance is the same as that of *Fagus sylvatica* subsp. *moesica*, whose taxonomical status is not clear. The forests appear above the zone of those previously described and are more mesophilous.

Ass. *Luzulo-Fagetum* Em 1965 (Tab. 1/10) is an acidophilous beech forest of the *Fagion moesicae*. It is found only on silicate bedrock over shallow and relatively deep soil layers. Acidophilous beech forests are distributed over a large area of southeastern Europe (RIZOVSKI and DŽEKOV 1990).

On the other side of the saum are grasslands of *Astragalo-Potentilletalia* Micevski 1970 association (an endemic order of the *Festuco-Brometea*), which are spread over large areas within the Republic of Macedonia, in the southern part of Serbia, Kosovo, and in the northern part of Greece over limestone, silicate, and even serpentine bedrock.

The dry grasslands of *Astragalo-Potentilletalia* can be divided into six alliances – *Armerio-Potentillion* Micevski 1978 (Tab. 1/17–20), *Scabioso-Trifolion dalmatici* Horvatić et Randelović 1973 (Tab. 1/21–25), *Saturejo-Thymion* Micevski 1970 (Tab. 1/26–28), *Trifolion cherleri* Micevski 1970 (Tab. 1/29–38), *Koelerio-Festucion dalmaticae* Randelović et Ružić 1982 (Tab. 1/39), and *Alyssion muralis* Konstantinou 1992 (Tab. 1/40–47) – and into unclassified communities (Tab. 1/48–51). The associations treated in Table 1 are listed in the legend.

The *Armerio-Potentillion* alliance is found on silicate bedrock at altitudes from 1000 to 1500 meters. Due to its vertical distribution, it is in contact with *Trifolion cherleri*.

The *Scabioso-Trifolion dalmatici* alliance is found on silicate bedrock at altitudes from 250 to 700 meters in southeastern Serbia.

The *Saturejo-Thymion* alliance is found on the territory of the Republic of Macedonia and in Kosovo on marl bedrock at altitudes from 100 to 700 meters.

The *Trifolion cherleri* alliance appears on silicate bedrock at altitudes from 50 to 900 meters in the Republic of Macedonia and in northern Greece.

The *Koelerio-Festucion dalmatica* alliance thrives at altitudes from 600 to 1000 meters on dolomite and serpentine bedrock in Serbia.

Alyssion muralis is an alliance of communities appearing mostly on serpentine bedrock in northern Greece at altitudes from 200 to 1000 meters.

The grasslands of *Calluno-Ulicetea* with a pattern of Atlantic and Sub-Atlantic distribution thriving in Central Europe on silicate bedrock cannot be found (MICEVSKI 1994). The serpentine vegetation of *Halacsyetalia sendtneri* Ritter-Studenička 1970 appearing in Serbia and Albania does not come into the region.

Material and methods

The methodology of phytosociology was introduced at the beginning of the 20th century as the result of the work of some phytogeographers at the end of the 19th century. Its origin is closely connected with the work of BRAUN-BLANQUET (1964), who elaborated and extended the methodology for the description and systematics of plant communities (stands). Phytosociology is the science studying the vegetation on the basis of associations, abstract units that are defined on the basis of floristic-statistic elements. The basis for the investigation of vegetation is an association that is limited in space and time. When analyzing an association, homogenous relevés of the vegetation must be selected. These relevés are then presented in a table and the syntaxa are thus defined based on characteristic and differential species. The basic syntaxa are associations that are united into alliances, orders, and classes. The associations can be divided into subassociations, races, and facies. An individual syntaxon is defined floristically on the basis of the appearance of characteristic and differential species. The different floristic structure is dependent on various ecological, chorological, and structural factors.

The classical BRAUN-BLANQUET method anticipated inductive classification, where a plant community should be first classified within an association. The associations are then united at a higher level, that of the alliance. Alliances are united into orders and these into classes.

In some cases, however, this kind of classification is not possible, and this is particularly true in cases of anthropogenic vegetation. In the 1970's, Kopecký developed a system for the classification of communities in which the character and differential species of lower syntaxa do not appear (KOPECKÝ and HEJNÝ 1974; KOPECKÝ 1978, 1992). The entire system is based on the BRAUN-BLANQUET methodology, but the classification is deductive. After the floristic analysis of a table, the classification on the class level is defined according to the predominance of species characteristic of classes. In the same way, a community is classified within an order. However, there rarely appear species characteristic of an alliance. When we apply this kind of classification, the syntaxon within which a

community is classified is indicated in brackets. In our case, this methodology of classification was applied to the *Vicia varia* community [*Geranion sanguinei*] and the *Vicia tenuifolia* community [*Geranion sanguinei*].

Since there are tendencies in the literature to break up the *Trifolio-Geranietea* into several classes, there has been an attempt to justify a syntaxonomic position for it independent of *Querco-Fagetea* forests and the dry grasslands of *Festuco-Brometea* (the *Astragalo-Potentilletalia*). Floristic similarities and differences were indicated, and the syntaxonomic position of the class was confirmed. Some of the tables that are in contact with saum vegetation in the southern Balkans were taken into consideration. Their floristic composition is presented in Table 1.

The relevés were sampled in June and July in 1996 and 1998. They were elaborated according to the standard procedure of the Braun-Blanquet method (BRAUN-BLANQUET 1964) and presented in four analytical tables. The nomenclature of the plant species follows TUTIN et al. (1964–1980), except for following species: *Achillea compacta* Willd. f. *humilis* Dörf., *Acinos arvensis* (Lam.) Dandy ssp. *villosus* (Gaud.) Soják, *Acinos hungaricus* (Simoncai) Šilić, *Aira capillaris* Host f. *ambigua* (De Not.) Asch., *Arenaria leptoclados* (Reichenb.) Guss. var. *viscidula* Williams, *Arenaria serpyllifolia* L. var. *viscida* DC., *Armeria rumelica* Boiss. f. *rhodopaea* (Vel.) Beck., *Astragalus onobrychis* L. var. *chlorocarpus* (Gris.) Stojan. et Stef., *Astragalus spruneri* Boiss. var. *thessalus* Boiss., *Biasolettia balcana* Vel., *Bromus squarrosus* L. var. *villosus* (Gmel.) Koch, *Cardamine bulbifera* (L.) Crantz f. *pilosa* Waisb., *Cerastium caespitosum* Hiitonen, *Cerastium glutinosum* Fr., *Daphne oleoides* Schreb. var. *puberula* Jaub. et Sp., *Dorycnium herbaceum* Vill. var. *macedonicum* (Degen et Dörfler) Kuzmanov, *Erysimum kuemmerlei* Jáv., *Euphorbia falcata* L. var. *ecornuta* Boiss., *Euphorbia sequieriana* Necker ssp. *niciciana* (Borbás ex Novák) Rech., *Galium oreophilum* Krendl, *Lotus corniculatus* L. var. *ciliatus* Koch, *Lotus corniculatus* L. var. *tenuis* W.K., *Medicago minima* (L.) Desr. in Lam. var. *longiseta* Ser. in DC., *Medicago prostrata* Jacq. var. *vukovici* Micevski, *Minuartia hirsuta* (Bieb.) Handl. – Mazz. ssp. *falcata* (Griseb.) Mattf. var. *denudata* (Fenzl) Graebn., *Onobrychis alba* (W.K.) Desv. var. *calcarea* (Vand.) Hay., *Pimpinella saxifraga* L. var. *dissecta* (Retz.) Spreng., *Poa bulbosa* L. f. *vivipara* Koel., *Podospermum canum* C. A. Mey., *Potentilla argentea* L. var. *tenuiloba* (Jord.) Schwarz, *Potentilla detomasii* Ten. var. *holosericea* (Gris.) Hausskn., *Potentilla hirta* L. var. *laeta* (Rchb.) Focke in Hal., Wohlf. et Koch, *Potentilla lacinosa* Waldst. et Kitt. ex Nestler var. *subsericea* (Griseb.) Wolf., *Potentilla pedata* Nestler var. *pinatifida* (Griseb.) Micevski, *Primula veris* L. ssp. *columnae* (Ten.) Lüdi et Hegg, *Ranunculus oreophilus* Bieb. ssp. *balcanicus* Micevski, *Sanguisorba minor* Scop. var. *gaillardotii* (Boiss.) Hayek, *Sideritis montana* L. var. *comosa* Boiss., *Crepis foetida* L. ssp. *rhoeadifolia* (M.B.) Fiori et Paol., *Thymus moesiacus* Vel. var. *microcalyx* (Deg. et Urum.) Ronn., *Trifolium incarnatum* L. var. *molinieri* (Balb.) DC.

The vegetation of the region requires nomenclatural revision; however, this was not the subject of the present research.

Results and discussion

Syntaxonomic position

The synthetic table (Tab. 1) indicates that the sampled vegetation should be classified as an independent class of the saum vegetation *Trifolio-Geranietea*:

Class	<i>Trifolio-Geranietea</i> Müller 1962
Order	<i>Origenetalia</i> Müller 1962
Alliance	<i>Geranion sanguinei</i> R. Tx. in Müller 1962
Suballiance	<i>Lathyrо laxiflori-Trifolienion velenovskyi</i> Čarni et al. 2000
Association	<i>Trifolietum velenovskyi-alpestris</i> Čarni et al. 2000
Association	<i>Lathyrо laxiflori-Trifolietum balcanici</i> Čarni et al. 2000
Association	<i>Chamaecytiso heuffelii-Trifolietum medii</i> Čarni et al. 2000
Community	<i>Vicia varia</i> comm.
Community	<i>Vicia tenuifolia</i> comm.

In comparison with forests and dry grasslands, only a few characteristic species appear. According to its physiognomy, it should also be treated as an independent class. There are numerous differential species; while there are dry grassland species toward the forests and forest species toward the grasslands, it also has some characteristic species that give it uniqueness.

It is evident that *Trifolio-Geranietea* communities thrive in the transition zones from forests to dry grasslands that can be also treated as *limes divergens* or ecoclines (Tab. 1). The main characteristic of such boundaries is numerous small-scale boundaries in phytocoenoses merging continuously into each other, with many species generally represented by a few individuals in a fine-grain pattern. (WESTHOFF and VAN DER MAAREL 1973)

Many forest species of *Querco-Fagetea* s. lat. appear, differentiating the saum toward the dry grasslands, such as *Abies borisii-regis*, *Artemisia agri-monioides*, *Brachypodium sylvaticum*, *Euphorbia amygdaloides*, *Festuca heterophylla*, *Knautia drymeia*, *Luzula forsteri*, *Myosotis sylvatica*, *Poa nemoralis*, *Primula veris*, and *Viola reichenbachiana*, to mention only the most common.

Characteristic species of suballiance, alliance, order, and class (*Lathyrо-Trifolienion*, *Geranion sanguinei*, *Origenetalia* and *Trifolio-Geranietea*) appear, such as *Agrimonia eupatoria*, *Clinopodium vulgare*, *Hypericum barbatum*, *Hypericum perforatum*, *Teucrium chamaedrys*, *Trifolium velenovskyi*, and *Trifolium medium* subsp. *balcanicum*, to mention the most abundant.

The syndynamic contact with the dry grassland can be recognized in Table 1. The floristic similarity is highest with the dry grassland of the *Armerio-Potentillion* alliance growing at a higher altitude on silicate bedrock. The common species are *Agrostis canina*, *Festuca valesiaca*, *Helianthemum nummularium* subsp. *nummularium*, *Hieracium bauchinii*, *Hypochoeris radicata*, *Koeleria macrantha*, *Potentilla argentea*, and *Potentilla inclinata*, to mention only a few.

The floristic similarities are minor with *Scabioso-Trifolion* and *Saturejo-Thymion*. Some common species can also be found in *Trifolion cherleri*, such as *Aira capillaris*, *Trifolium angustifolium*, *Trifolium physodes*, *Petrorhagia velutina*, *Ventenata dubia*, *Vulpia myuros*, etc.

SAUM VEGETATION IN THE REPUBLIC OF MACEDONIA

Tab. 1. Comparison of the saum vegetation, contact forests and dry grasslands in the southern Balkans (for column specification, see legend)

Tab. I. – continued

	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
<i>Sorbus columnaria</i>																																										
<i>Fraxinus ornata</i> A																																										
<i>Fraxinus ornata</i> B																																										
<i>Fraxinus ornata</i> C																																										
<i>Cyclamen hederifolium</i>																																										
<i>Cornus mas</i> B																																										
<i>Cornus mas</i> C																																										
<i>Taraxacum corymbosum</i>																																										
<i>Lathyrus niger</i>																																										
<i>Carpinus orientalis</i> A																																										
<i>Carpinus orientalis</i> B																																										
<i>Carpinus orientalis</i> C																																										
<i>Silene noctea</i>																																										
<i>Sorbus domestica</i> B																																										
<i>Sorbus domestica</i> C																																										
<i>Phlomis sicula</i>																																										
<i>Asperugo tenellifolia</i>																																										
<i>Campanula persicifolia</i>																																										
<i>Sorbus terminalis</i> A																																										
<i>Sorbus terminalis</i> B																																										
<i>Sorbus terminalis</i> C																																										
<i>Polygonatum multiflorum</i>																																										
<i>Melampsacestruthium</i>																																										
<i>Paederota lutea</i>																																										
<i>Acer monspeliacum</i> B																																										
<i>Acer monspeliacum</i> C																																										
<i>Buglossoides purpureocerulea</i>																																										
<i>Viola hirta</i>																																										
<i>Tilia tomentosa</i> A																																										
<i>Tilia tomentosa</i> B																																										
<i>Tilia tomentosa</i> C																																										
<i>Ceratostigma emarginatum</i> C																																										
<i>emarginatum</i>																																										
<i>Geranium sanguineum</i>																																										
<i>Ferns communis</i>																																										
<i>Arabis rupestris</i>																																										
<i>Mercenaria ovata</i>																																										

Tab. 1. – continued

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	
<i>Malus pumila</i> B																																																				
<i>Morus pumila</i> C																																																				
<i>Gaultheria procumbens</i>																																																				
<i>Chamaephytis hispida</i> B																																																				
<i>Quercus pubescens</i> A																																																				
<i>Quercus pubescens</i> B																																																				
<i>Quercus pubescens</i> C																																																				
<i>Helleborus odorus</i>																																																				
F1 FAGION MOESCAE																																																				
<i>Fagus moesica</i> A																																																				
<i>Fagus moesica</i> B																																																				
<i>Fagus moesica</i> C																																																				
<i>Rubus fruticosus</i>																																																				
<i>Luzula luzulina</i>																																																				
<i>Luzula sylvatica</i>																																																				
<i>Lamium galeobdolon</i>																																																				
<i>Poa clandestina</i>																																																				
<i>Rubus strigosus</i>																																																				
<i>Rheum spicatum</i>																																																				
F2 FAGIETUM SYLVATICAE																																																				
<i>Laportea communis</i>																																																				
<i>Symphoricarpos tuberosum</i>																																																				
<i>Lilium martagon</i>																																																				
<i>Gilia odoratissima</i>																																																				
<i>Myrsinella munilis</i>																																																				
<i>Alyssum repens</i>																																																				
<i>Epicarpis helvetica</i>																																																				
<i>Acer pseudoplatanus</i>																																																				
<i>Milium effusum</i>																																																				
<i>Pennantia purpurea</i>																																																				
<i>Lonicera xylosteum</i>																																																				
<i>Dryopteris filix-mas</i>																																																				
<i>Gaultheria pumila</i>																																																				

Tab. 1. – continued

OF	QUERCIFAGETA	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
Poo nemoros																																																				
Baccharis sphaericum																																																				
Euphorbia amygdaloides																																																				
Aenanthe virginiana																																																				
Malva verticillata																																																				
Parthenocissus quinquefolia																																																				
Litchi chinensis																																																				
Astragalus glycyphyllos																																																				
Juniperus communis B																																																				
Juniperus communis C																																																				
Pinus sylvestris																																																				
Corylus avellana B																																																				
Corylus avellana C																																																				
Viola reichenbachiana																																																				
Mystrotes sphaeratus																																																				
Rosa caninae B																																																				
Rosa caninae C																																																				
Stachys sordida																																																				
Selaginella kraussiana																																																				
Kutia pumila																																																				
Acer platanoides A																																																				
Acer platanoides B																																																				
Acer platanoides C																																																				
Pinus sibirica A																																																				
Pinus sibirica B																																																				
Veronica officinalis																																																				
Cardamine hirsuta L. pilosa*																																																				
Gilia syriaca																																																				
Sympetrum balcanicum																																																				
Gentianella obtusiloba																																																				
Salvia glutinosa																																																				
Baccharis balcanica																																																				

Tab. 1. - continued

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
<i>Acer hyrcanum</i> A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Acer hyrcanum</i> B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Acer hyrcanum</i> C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Acer platanoides</i> A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Acer platanoides</i> B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Acer platanoides</i> C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Euonymus latifolius</i> B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Medicago interrvia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Acer campestre</i> A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Acer campestre</i> B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Acer campestre</i> C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Polypodium vulgare</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Hieracium laevigatum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Acer italicum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Sambucus nigra</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Pimelia velutina</i> ssp. columnae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Amenone nemorosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Carpinus betulus</i> A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Carpinus betulus</i> B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Carpinus betulus</i> C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Polygonatum multiflorum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Carex davuriana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Hedera helix</i> A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Hedera helix</i> B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Hedera helix</i> C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Ulmus minor</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Cephaelis uva-ursi</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Erythronium dens-canis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Rosa sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Vitis rotundifolia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Ianthidium aquilegiifolium</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Geffom pseudostictum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Cephalaria damascenium</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Lonicera caprifolium</i> B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Lonicera caprifolium</i> C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

Tab. 1. -- continued

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<i>Carex brizoides</i>																																																				
<i>Hieracium sabaudum</i>																																																				
<i>Convolvulus majalis</i>																																																				
<i>Lathyrus sativus</i>																																																				
<i>Hieracium acenousum</i>																																																				
<i>Calamintha granitiflora</i>																																																				
<i>Tilia platyphyllos A</i>																																																				
<i>Tilia platyphyllos C</i>																																																				
<i>Gaultheria procumbens</i>																																																				
<i>Rubus sachalinensis</i>																																																				
<i>Abies holophylla</i>																																																				
<i>Scrophularia incisa</i>																																																				
<i>Osmunda cinnamomea</i>																																																				
<i>Osmunda japonica</i>																																																				
<i>Gaultheria shallonii</i>																																																				
II LATHYRUM-TRICOLYONUM VELENOVSKYI																																																				
<i>Infidium oblongum</i>																																																				
<i>Infidium m. ssp. balconicum</i>																																																				
<i>Digitaria sanguinalis</i>																																																				
<i>Infidium velezenskyi</i>																																																				
<i>Vicia villosa</i> ssp. <i>venosa</i> *																																																				
<i>Dioryctria hebetorana</i> var. <i>mordax</i>																																																				
<i>Vicia sativa</i> ssp. <i>nigra</i>																																																				
<i>Infidium m. ssp. medium</i>																																																				
TG GERANIUM, ORIGANTELAIA, TRIFOLIO-GERANIEAE																																																				
<i>Teucrium chamaedrys</i>																																																				
<i>Climaciella vulgare</i>																																																				
<i>Hypéricum perforatum</i>																																																				
<i>Fragaria vesca</i>																																																				
<i>Coronilla varia</i>																																																				
<i>Silene viscaria</i>																																																				
<i>Poa angustifolia</i>																																																				
<i>Oryzopsis rugosa</i>																																																				
<i>Hypéricum barbatum</i>																																																				

SAUM VEGETATION IN THE REPUBLIC OF MACEDONIA

Tab. 1. – continued

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
<i>Agrimonia eupatoria</i>																																																			
<i>Fragaria viridis</i>																																																			
<i>Fragaria moschata</i>																																																			
<i>Vicia hirsutissima</i>																																																			
<i>Tridium medium</i>																																																			
<i>Anthriscus sagittata</i>																																																			
<i>Gallium album</i>																																																			
<i>Lathyrus sativus</i>																																																			
<i>Lathyrus aphaca</i>																																																			
<i>Lathyrus latifolius</i>																																																			
<hr/>																																																			
AP1 ARMERIO-POTENTILLION																																																			
<i>Hieracium p. ssp. baeticum</i>																																																			
<i>Hypochaeris radicata</i>																																																			
<i>Helianthemum nummularium</i> nummularium																																																			
<i>Plantago holosteaum</i>																																																			
<i>Gentiana lutea</i>																																																			
<i>Myosotis rotundifolia</i>																																																			
<i>Filipendula vulgaris</i>																																																			
<i>Potentilla inclinata</i>																																																			
<i>Arenaria s. var. vesicaria</i>																																																			
<i>Trifolium strictum</i>																																																			
<i>Aegopodium podagraria</i>																																																			
<i>Euphorbia peplus</i>																																																			
<i>Aegopodium castellana</i>																																																			
<i>Rhamnus cathartica</i>																																																			
<i>Euphorbia lathyris</i>																																																			
<i>Veronica frigida</i>																																																			
<i>Sedum acre</i>																																																			
<i>Sedum nevorum</i>																																																			
<i>Sedum petrense</i> ssp. <i>marginalis</i>																																																			

Tab. 1. – continued

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
SCABIOSO-TRIFOLION DAUMATIC																																																			
<i>Jasione helvetica</i>																																																			
<i>Ameria tenuifolia</i>																																																			
<i>Trifolium trichopterum</i>																																																			
<i>Tilodium hurtum</i>																																																			
<i>Dianthus p.ssp. flaccinus*</i>																																																			
<i>Schizosa argentea</i>																																																			
<i>Vicia satyrioides</i>																																																			
<i>Erophisus stricta</i>																																																			
<i>Thymus globecens</i>																																																			
<i>Infidolium daubnaticum</i>																																																			
<i>Artemisia l.ssp. cretica</i>																																																			
<i>Dianthus pontederae</i>																																																			
<i>Lunaria canicular</i>																																																			
SATURO-THYMION																																																			
<i>Convolvulus l.ssp.</i>																																																			
<i>elegansissimus*</i>																																																			
<i>Ziziphora capitata</i>																																																			
<i>Hemerocallis poteriostium</i>																																																			
<i>Crepis sancta</i>																																																			
<i>Bupleurum apiculatum</i>																																																			
<i>Astragalus s. var. thessalus*</i>																																																			
<i>Echinops capitata</i>																																																			
<i>Helianthemum ledifolium</i>																																																			
<i>Medicago f. var. glandulosos</i>																																																			
<i>Orobrydis arenaea</i>																																																			
<i>Allium flavum</i>																																																			
<i>Centauraea ornithionea</i>																																																			
<i>Aegilops c. ssp. heledicijii</i>																																																			
<i>Ondoryalis phatokota</i>																																																			
<i>Linum nodifolium</i>																																																			
<i>Mimulus luteus</i>																																																			
<i>Goniolimon heledicium</i>																																																			
<i>Sarcococca laciniata</i>																																																			
<i>Linum tauricum</i>																																																			

Tab. 1. – continued

TRIFOLIUM CHERIERI																																																		
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
<i>Actaea hungarica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Tribulus corynefolius</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Hypocrepis oxycephala</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Limonium pratense</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Hubertia guttata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Petroselinum pratense</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Valeriana officinalis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Valerianella locusta</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Verbena myosotis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Trifolium spissaeum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Lathyrus minima</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Trifolium cheiranthoides</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Hypochaeris cretica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Hypochoeris glabra</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Cirsium incanum</i> ssp. <i>creticum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Aira capillaris</i> f. <i>ambigua</i> *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Trifolium glomeratum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Sedum acreptissimum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Silene ciliata</i> ssp. <i>sabonaria</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Bromus s. var. villosus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Petroselinum velutina</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Moenchia gracilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Oenothera compacta</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Aphanes arvensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Thymus capitatus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Dianthus carthusianorum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Plantago bellidifolia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Trifolium physodes</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Veronica dubia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Aira elegansissima</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Trifolium echinatum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Parexochorda trifolia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Valerianella microcarpa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Trifolium leucanthum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Campionis phrygia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						

Tab. 1. – continued

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		
KOFNERO-FESTUCION DAMMATICAE																																																					
<i>Hediondium elegans</i>					
<i>Allium 3sp.</i>						
<i>Linnum gignum</i>						
<i>Centaura lymphaea</i>						
<i>Luglio gallica</i>						
<i>Achillea dryasocana</i>						
<i>Micropus tenuellum</i>						
<i>Linum leiente</i>						
<i>Pavotistestum myrianthum</i>						
<i>Centauria b.ssp.</i>						
<i>ciliataecephala</i>						
<i>Thymus strictus</i>						
<i>Dianthus barbatus</i>						
<i>Erophila glauca</i>						
<i>Rapistrum hordaceum</i> ssp. gossypii						
<i>Silene vulgaris</i>						
<i>Paronychia capillaris</i>						
<i>Bromus riparius</i>						
<i>Sedum acreleucum</i>						
AM ALYSION-MIRALIS																																																					
<i>Centaura grisbachii</i>						
<i>Tifolium tenuifolium</i>						
<i>Aethionema sativale</i>						
<i>Alyssum murale</i>						
<i>Potentilla pedata</i>						
<i>Mirantina cissoides</i>						
<i>Alyssum trichostachyon</i>						
<i>Agnus o.ssp. villosus*</i>						
<i>Artemisia alba</i>						
<i>Crepis pulchra</i>						
<i>Eucommia triunensis</i>						
<i>Thymus thunbergii</i>						

Tab. 1. - continued

Tab. 1. – continued

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
<i>Festuca pseudotenuis</i>																																																			
<i>Oenothera canescens</i>																																																			
<i>Bassia virescens</i>																																																			
<i>Sedum rubens</i>																																																			
<i>Muraria hybrida</i>																																																			
<i>Sedum tristis</i>																																																			
<i>Micromeria viscosa</i>																																																			
<i>Solenites in-virga canescens*</i>																																																			
<i>Circium gummiferum</i>																																																			
<i>Achillea cunctifolia</i>																																																			
<i>Crepis f. lispus</i>																																																			
<i>Aerugo spinea</i>																																																			
<i>Euphorbia seguieriana</i> spp. infructeata																																																			
<i>Potentilla hirsutissima</i>																																																			
<i>Linnum spp. corniculatum*</i>																																																			
<i>Crocosmia neglecta</i>																																																			
<i>Plantago lanceolata</i>																																																			
<i>Medicago f. rotundifolia</i>																																																			
<i>Riouma saponaria</i>																																																			
<i>Linum austriacum</i>																																																			
<i>Euphorbia myrsinites</i>																																																			
<i>Hippocratea luteola</i>																																																			
<i>Akmena hercacea</i>																																																			
<i>Campanula rotundifolia</i>																																																			
<i>Gilia tricolor</i>																																																			
<i>Euphorbia f. var. ecornuta*</i>																																																			
<i>Acetosella vulgaris</i>																																																			
<i>Potentilla recta</i>																																																			
<i>Frangula glaberrima</i>																																																			
<i>Tanacetum leptophyllum</i>																																																			
<i>Trollius phaeocephalus</i>																																																			
<i>Frangula alnoides</i>																																																			
<i>Infuria stellatum</i>																																																			
<i>Potentilla hirta</i> var. <i>leptocephala</i>																																																			
<i>Potentilla hirta</i> var. <i>pinnatifida</i>																																																			
<i>Silene neesii</i>																																																			

SAUM VEGETATION IN THE REPUBLIC OF MACEDONIA

Tab. 1. — continued

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
<i>Scleranthus perennis</i> ssp. <i>dichotomus</i>			
FB FESTUCAROMETA				
<i>Sanguisorba</i> m.spp. <i>minutaria</i> *	IV																																																		
<i>Poa bulbosa</i> f. <i>virgata</i> *	IV																																																		
<i>Trifolium campestre</i>																																																			
<i>Eryngium campestre</i>																																																			
<i>Chrysopogon gryllus</i>																																																			
<i>Euphorbia cyparissias</i>	II	II	III																																																
<i>Convolvulus cantabrica</i>																																																			
<i>Melica minima</i>																																																			
<i>var. longiseta</i> *																																																			
<i>Aegopodium podagraria</i> l. var. <i>viscidula</i> *																																																			
<i>Hieracium pilosella</i>																																																			
<i>Cynosurus echinatus</i>	I																																																		
<i>Chamomilla recutita</i>																																																			
<i>Dichtanthium schoenoides</i>																																																			
<i>Hieracium pilosella</i>																																																			
<i>Frodium esculentum</i>																																																			
<i>Infidium sabaudum</i>																																																			
<i>Asperula cynanchica</i>																																																			
<i>Batrachium distichyon</i>																																																			
<i>Neottia aplysioides</i>																																																			
<i>Myosotis stricta</i>																																																			
<i>Bonplandia erecta</i>																																																			
<i>Hemimanzania incana</i>																																																			
<i>Ceutorhynchus glomeratus</i> *	I																																																		
<i>Festuca vesca</i>																																																			
<i>Gilia verum</i>																																																			
<i>Carica vulgaris</i>																																																			
<i>Leontodon hispidus</i>																																																			
<i>Trigonella monspeliaca</i>																																																			
<i>Filago vulgaris</i>																																																			
<i>Pheum phleoides</i>																																																			
<i>Odora grandiflora</i>																																																			
<i>Scleranthus a.spp. polycarpus</i>																																																			

Tab. 1. — continued

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
<i>Prunella leucotrichia</i>																																																		
<i>Indigofera pseudotinctoria</i>																																																		
<i>Laporta avensis</i>																																																		
<i>Carrichtera annua</i>																																																		
<i>Asphodelus albus</i>																																																		
<i>Ajuga genevensis</i>																																																		
<i>Scleranthus annuus</i>																																																		
<i>Hemionia grisea</i>																																																		
<i>Achillea setacea</i>																																																		
<i>Lathyrus aquatica</i>																																																		
<i>Brodiaea pulchella</i>																																																		
<i>Scleria mitchellii</i> ssp. <i>mitchellii</i>																																																		
<i>Tifidium incanum</i> var. <i>mobiliense</i>																																																		
<i>Hemionia hispida</i>																																																		
<i>Orobanchis capillaris</i>																																																		
<i>Thymus officinalis</i>																																																		
<i>Linum catharticum</i>																																																		
<i>Tifidium strictum</i>																																																		
<i>Dianthus caryophyllus</i>																																																		
<i>Silene viscaria</i>																																																		
<i>Capsella vulgaris</i>																																																		
<i>Molinia stricta</i> ssp. <i>stricta</i>																																																		
<i>Calystegia sepium</i>																																																		
<i>Sedum acre</i>																																																		
<i>Achillea millefolium</i>																																																		
<i>Matricaria chamomilla</i>																																																		
<i>Astragalus humerosus</i>																																																		
<i>Vicia sativa</i>																																																		
<i>Arabis hispida</i>																																																		
<i>Thlaspi perfoliatum</i>																																																		
<i>Achillea collina</i>																																																		
<i>Artemisia caerulea</i>																																																		
<i>Sinapis arvensis</i>																																																		
<i>Veronica venosa</i>																																																		
<i>Veronica venosa</i>																																																		

Tab. 1. — continued

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51								
<i>Allium sphaerocephalon</i>																																																											
<i>Fumaria procumbens</i>																																																											
<i>Saxifraga archdeaconii</i>																																																											
<i>Cordia canytissa</i>																																																											
<i>Filago Bryantidium</i>																																																											
<i>Dorycnium hirsutum</i>																																																											
<i>Anthyllis vss. macedonica</i> var. <i>bulgariaca</i> *																																																											
<i>Bromus media</i>																																																											
<i>Polygonatum multiflorum</i> var. <i>dissectum</i> *																																																											
<i>Festuca hiemogigantea</i>																																																											
<i>Gymnadenia conopsea</i>																																																											
<i>Medicago lupulina</i>																																																											
<i>Potentilla canescens</i>																																																											
<i>Ononis spinosa</i>																																																											
<i>Ritidium intaminatum</i>																																																											
<i>Poa malacina</i>																																																											
<i>Veronica p. sp. velutina</i>																																																											
<i>Veronica austriaca</i>																																																											
<i>Polygonum perfoliatum</i> sp.																																																											
<i>Mediterraneum*</i>																																																											
<i>Achillea nobilis</i>																																																											
<i>Allium flavum</i> ssp. <i>flavum</i>																																																											
<i>Selinum intammandis</i>																																																											
<i>Medicago p. p. vulkovičii</i> *																																																											
<i>Alyssum diffusoides</i>																																																											
<i>Anisodonta thalictroides</i>																																																											
<i>Asperula purpurea</i> ssp. <i>opiculum</i>																																																											
<i>Festuca californica</i>																																																											
<i>Koeleria nitida</i>																																																											
<i>Ceratium p. sp. purpureum</i>																																																											
<i>Dorycnium pentaphyllum</i>																																																											
<i>Hedysarum umbellatum</i>																																																											

Tab. 1. — continued

SM	STELLARIFLORA MEDIAE	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
<i>Veronica avensis</i>																																																				
<i>Vicia hispida</i>																																																				
<i>Valerianella coronata</i> ssp. Kotschy																																																				
<i>Stellaria arvensis</i>																																																				
<i>Bromus festuca</i>																																																				
<i>Nigella arvensis</i>																																																				
<i>Blindia convolvulus</i>																																																				
<i>Erophila venetica</i>																																																				
<i>Viola tricolor</i>																																																				
<i>Anagallis arvensis</i>																																																				
<i>Amaranthus arvensis</i>																																																				
<i>Orychophragmus</i>																																																				
<i>Apera spica-venti</i>																																																				
<i>Bromus hordeaceus</i>																																																				
<i>Capsella bursa-pastoris</i>																																																				
<i>Cockscomb</i>																																																				
<i>Bromus sterilis</i>																																																				
<i>Gentianella molle</i>																																																				
<i>Gentianella columnaria</i>																																																				
<i>Tanacetum arvense</i>																																																				
<i>Athaea hispida</i>																																																				
<i>Tanacetum indica</i>																																																				
<i>Polygonum avicinum</i>																																																				
<i>Lamium amplexicaule</i>																																																				
<i>Veronica heterostachys</i>																																																				
<i>Viola emarginata</i>																																																				
<i>Rumex pulcher</i>																																																				
<i>Ceratium lanatum triviale</i>																																																				
<i>Gilia pinnatifida</i>																																																				
<i>Senecio vernalis</i>																																																				
<i>Plantago lanceolata</i>																																																				

SAUM VEGETATION IN THE REPUBLIC OF MACEDONIA

Tab. 1. – continued

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51						
<i>Agrostis capillaris</i>
<i>Bromus hordeaceus</i>
<i>Ambrosia nutans</i>
<i>Hymenoxys hispida</i>
<i>Saxifraga apetala</i>
<i>Erythranthe leptocephala</i>
<i>Rubus idaeus</i>
<i>Legousia speculum-veneris</i>
 A <i>ARTEMISIETEA</i>																																																									
<i>Ceratium inflatum</i>
<i>Tonina japonica</i>
<i>Antennaria hispida</i>
<i>Coreopetalum arvensis</i>
<i>Marrubium peregrinum</i>
<i>Poa compressa</i>
<i>Fragaria ananassa</i>
<i>Lactuca viminea</i>
<i>Cirsium vulgare</i>
<i>Polygonum perfoliatum</i>
<i>Crepis capillaris</i>
<i>Centaurium pulchellum</i>
<i>Taraxacum officinale</i>
<i>Imperata cylindrica</i>
<i>Succowia sphaerocephala</i>
<i>Reseda lutea</i>
<i>Edwardsia nitra</i>
 GJ <i>GALLO-ARTICETEA</i>																																																									
<i>Gennaria tubiformis</i>
<i>Crucidium laevigatum</i>
<i>Galanthus opacus</i>
<i>Sedum cepaea</i>
<i>Geum urbanum</i>
<i>Violula odontoides</i>

Tab. 1. — continued

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51								
<i>Allium petiolata</i>																																																											
<i>Lamium maculatum</i>																																																											
<i>Epidendrum aeruginosum</i>																																																											
<i>Hedera helix</i>																																																											
<i>Chrysophyllum aureum</i>																																																											
NA: NO INDO-CARIBBEAN TERTIAL																																																											
<i>Pantographa lanceolata</i>	V	V																																																									
<i>Dactyloctenium aegyptium</i>																																																											
<i>Trifolium repens</i>																																																											
<i>Craus sebosa</i>																																																											
<i>Anthoxanthum odoratum</i>																																																											
<i>Infidium nigrescens</i>																																																											
<i>Trisetum flavescens</i>																																																											
<i>Infidium pratense</i>																																																											
<i>Moenchia minima</i>																																																											
<i>Phleum pratense</i>																																																											
<i>Prunella vulgaris</i>																																																											
<i>Poa trivialis</i> ssp. <i>syriaca</i>																																																											
<i>Lotus corniculatus</i> var. <i>ciliatus</i>																																																											
<i>Taraxacum officinale</i>																																																											
<i>Achillea millefolium</i>																																																											
<i>Lotus c. var. <i>corniculatus</i></i>																																																											
<i>Poa pratensis</i>																																																											
<i>Cynodon dactylon</i>																																																											
<i>Bellis perennis</i>																																																											
<i>Tagoecyon pratensis</i>																																																											
<i>Lathyrus palustris</i>																																																											
<i>Festuca ssp. <i>albula</i></i>																																																											
<i>Leucanthemum vulgare</i>																																																											
<i>Holcus lanatus</i>																																																											
<i>Sideritis grimmioides</i>																																																											
<i>Kunthia urens</i>																																																											
<i>Diachena canaria</i>																																																											
<i>Festuca ssp. <i>pratensis</i></i>																																																											
<i>Ranunculus multiflorulus</i>																																																											

SAUM VEGETATION IN THE REPUBLIC OF MACEDONIA

Tab. 1. — continued

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
Riparia pyrenaea
Lathyrus perenne			
Compania p.ssp. epigeaea				
ES ELYNO-SESPERETEA				
Leucodon crispus				
Egium oregophilum				
Fragaria ananassa ssp. lithophila*				
Daphne oleoides var. pyrenaica*				
CC CARPETA-CURVULAE				
Comptonia p.ssp. spinulosa*				
Thymus longicaulis				
Roumaldia sempervirens ssp. bedianus				
Luzula campestris				
RP RHAMNO-PRUNETEA				
Craibigia monogramma B				
Craibigia monogramma C				
Rubus amurensis B				
Rubus coreanus C				
Pyrus pyraster B				
Prunus phaeotricha C				
Ligustrum vulgare				
Juniperus oxycedrus B				
Juniperus oxycedrus C				
Prunus spinosa B				
Prunus spinosa C				
Sambucus nigra				
Fionymus europaeus B				
Hormathium euphorbioides C				
Kabobus c.v. emarginatus				
Psyllium omygdaliformis				

Tab. 1. - continued

S	OTHER SPECIES	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
	<i>Veronica chamaedrys</i>																																																			
	<i>Verbascum</i>																																																			
	<i>Cypripedium acaule</i>																																																			
	<i>Achillea millefolium f. humilis</i> *																																																			
	<i>Ranunculus polystachyus</i>																																																			
	<i>Boronia orientalis</i>																																																			
	<i>Chamomilla recutita</i>																																																			
	<i>Carex mucronata</i> spp. <i>tenuiformis</i>																																																			
	<i>Lampranthus</i>																																																			
	<i>Digitalis grandiflora</i>																																																			
	<i>Polygonum vivianum</i>																																																			
	<i>Cardiospermum leprosum</i>																																																			
	<i>Hypoxis hirsuta</i>																																																			
	<i>Vinca major</i>																																																			
	<i>Silene vulgaris</i>																																																			
	<i>Cystopteris fragilis</i>																																																			
	<i>Crucifer perennis</i>																																																			
	<i>Gilia longirostrum</i> f. <i>schaffnerianum</i> *																																																			
	<i>Lolium rigidum</i>																																																			
	<i>Trifolium subterraneum</i>																																																			
	<i>Agrostis capillaris</i>																																																			
	<i>Allium</i> sp.																																																			
	<i>Eriogonum reductum</i>																																																			
	<i>Cirsium</i> sp.																																																			
	<i>Festuca ovina</i>																																																			
	<i>Galium mollugo</i>																																																			
	<i>Carex praecox</i>																																																			
	<i>Carex dianthia</i>																																																			
	<i>Carex echinata</i>																																																			
	<i>Linum hololegma</i>																																																			
	<i>Petroselinum crispum</i> ssp. <i>hymenoides</i> *																																																			
	<i>Scrophularia nodosa</i>																																																			
	<i>Veronica persica</i>																																																			

SAUM VEGETATION IN THE REPUBLIC OF MACEDONIA

Tab. 1. – continued

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
<i>Schizanthus hispanicus</i>																																																			
<i>Myosotis inaurata</i>																																																			
<i>Roridula galinacea</i>																																																			
<i>Ceilica sp.</i>																																																			
<i>Festuca sp.</i>																																																			
<i>Asplenium adiantum-nigrum</i>																																																			
<i>Bartsia ssp. aschenborniana</i>																																																			
<i>Paeonia austriacum</i>																																																			
<i>Polygonatum odoratum</i>																																																			
<i>Luzula luteola</i>																																																			
<i>Lytis viscaria</i>																																																			
<i>Anemone apennina</i>																																																			
<i>Asperula tinctoria</i>																																																			
<i>Thymus sp.</i>																																																			
<i>Desmodium flexuosa</i>																																																			
<i>Dianthus deltoides</i>																																																			
<i>Paeonia officinalis</i>																																																			
<i>Paeonia lactiflora</i>																																																			
<i>Paeonia officinalis</i>																																																			
<i>Potentilla albonitens</i>																																																			
<i>Potentilla albonitens</i>																																																			
<i>Thlaspi divaricatum</i>																																																			
<i>Trochomeria polita</i>																																																			
<i>Hieracium frapolatum</i>																																																			
<i>Omphogonium orthophyllum</i>																																																			
<i>Hieracium pilosellides</i>																																																			
<i>Musci</i>																																																			
<i>Teesdalia coronopifolia</i>																																																			
<i>Orosma menziesii</i>																																																			
<i>Orobanchis graminis</i>																																																			
<i>Orobanchis graminis</i>																																																			
<i>Cryptotaenia canadensis</i>																																																			
<i>Gilia sp.</i>																																																			
<i>Phegopteris solieri</i>																																																			
<i>Athyrium desetorum</i>																																																			
<i>Sarcococca hookeriana</i>																																																			
<i>Oxydendrum arboreum</i>																																																			
<i>Pilea menthae</i>																																																			
<i>Gaultheria mucronata</i>																																																			

Tab. 1. – continued

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	
<i>Centaura diffusa</i>																																																				
<i>Anthrax hermanniae</i>																																																				
<i>Acanthus balcanicus</i>																																																				
<i>Gentiana lutea</i>																																																				
<i>Auga lissamnii</i>																																																				
<i>Cephaelanthus sp.</i>																																																				
<i>Vicia sativa</i>																																																				
<i>Vicia sativina</i>																																																				
<i>Ceratostium pumicola</i>																																																				
<i>Crepis sp.</i>																																																				
<i>Coleos elatior</i>																																																				
<i>Viola incana</i>																																																				
<i>Comastoma elegans</i>																																																				
<i>Bimius tamnous</i>																																																				
<i>Papaver rhoeas</i> B																																																				
<i>Papaver rhoeas</i> C																																																				
<i>Cicerbita glabra</i>																																																				
<i>Verbascum nigrum</i>																																																				
<i>Hieracium murorum</i>																																																				
<i>Saxifraga rubrifolia</i>																																																				
<i>Festuca drymophila</i>																																																				
<i>Medicago falcata</i>																																																				
<i>Orthilia secunda</i>																																																				
<i>Campanula trichocalyx</i>																																																				
<i>Pyrola minor</i>																																																				
<i>Dianthus barbatus</i>																																																				
<i>Scrophularia columbaria</i>																																																				
<i>Hypnum cupressiforme</i>																																																				
<i>Hypochaeris maculata</i>																																																				
<i>Lysimachia punctata</i>																																																				
<i>Muscari comosum</i>																																																				
<i>Linaria dalmatica</i> ssp. mediterranea																																																				
<i>Staphys sylvatica</i>																																																				
<i>Chrysophyllum terminalium</i>																																																				
<i>Callianthe acuminata</i>																																																				
<i>Erythranthe leptocephala</i>																																																				
<i>Genista scorpius</i>																																																				

Tab. 1. — continued

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
<i>Panionia acarna</i>			
<i>Campanula rotundifolia</i>					
<i>Hordium bulbosum</i>						
<i>Dianthus barbatus</i>						
<i>Davuria sp.</i>						
<i>Carduus sp.</i>						
<i>Lathyrus odoratus</i>						
<i>Centaura diffusa</i>						
<i>Thymus maderensis var. micracanthus</i>						
<i>Plantago lanceolata</i>						
<i>Candolus indecisus</i> sp. annuus						
<i>Asperula austriaca</i> ssp. <i>scrubba</i>						
<i>Thlaspi arvense</i> var. <i>cosmopolitanum</i>						
<i>Thlaspi glomeratum</i>						
<i>Colomintha longiligulata</i>						
<i>Crepis racemosa</i>						
<i>Convolvulus holosericeus</i>						
<i>Sylvia nisoria</i>						
<i>Arysma stigiosum</i>						
<i>Centaura rupestris</i> sp. finazzettii						
<i>Pedicularis canadensis</i>						
<i>Valerianella muralis</i>						
<i>Orthocarpus nevadensis</i>						
<i>Erysimum laevigatum</i>						
<i>Cristaria ligulata</i>						
<i>Asteriscus aquaticus</i>						
<i>Alyssum minutum</i>						
<i>Alyssum simplex</i>						
<i>Phleum serotinum</i>						
<i>Valerianella peruviana</i>						
<i>Tyminia heterogynia</i>						
<i>Verbasco leucophyllum</i>						
<i>Cyperus panniflorus</i>						
<i>Godium verticillatum</i>						

Tab. 1. – continued

Berberis officinalis	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
Gypsophila muralis			
Asphodelus sp.			
Solanum sp.				
Tinia glauca				
Fumana thymifolia				
Fumana longipetiolata				
Bromus intermedius				
Athamnus reticulatus				
Genista lydia				

Legend to the Tab. 1.

Column	Association	Source	Table	Number of telecs	Region
1	Quercetum frainetto-cens macedonicum Oborny 1948 em Em 1959	Em, 1968	Trib 1	15	Macedonia
2	Quercetum frainetto-cens macedonicum Oborny 1948 em Em 1959	Em, 1964	Trib 1	15	Macedonia
3	Quercetum frainetto-cens macedonicum Oborny 1948 em Em 1959	Rizovski et al., 1990	Trib 6	5	Bistrička, W Macedonia
4	Omno-Quercetum petraeum Em 1948	Rizovski et al., 1990	Trib 7	9	Bistrička, W Macedonia
5	Omno-Quercetum petraeum Em 1948	Derevov and Rizovski, 1978	Trib 4	10	Maleš, Pirot, MK
6	Omno-Quercetum petraeum subsubsp. carpinetosum beluli H. Em 1968	Rizovski, 1970	Trib 1	-	Macedonia
7	Omno-Quercetum petraeum subsubsp. carpinetosum beluli H. Em 1968	Em, 1968	Trib 1	10	Macedonia
8	Omno-Quercetum petraeum subsubsp. luzulifoliosum	Em, 1968	Trib 1	15	Macedonia
9	Omno-Quercetum petraeum subsubsp. carpinetosum et luzulifoliosum	Em, 1968	Trib 1	25	Macedonia
10	Luzula-Fagellum macedonicum Em 1976	Rizovski et al., 1990	Trib 17	5	Bistrička, W Macedonia
11	Festuca heterophylla-Fagellum Em 1945	Rizovski et al., 1990	Trib 11	5	Bistrička, W Macedonia
12	Inflolearum velutinovskij-depinensis Čarni et al. 2000	Čarni et al., 2000	Trib 2	22	Macedonia, MK
13	Inflolearum velutinovskij-depinensis holostei Čarni et al. 2000	Čarni et al., 2000	Trib 3	7	W Macedonia, MK
14	Chamaecyparis liebmüllerii-Tricholeium mediū Čarni et al. 2000	Čarni et al., 2000	Trib 4	4	W Macedonia, MK
15	Vicia varia comm.	Čarni et al., 2000	Trib 5	4	W Macedonia, MK
16	Vicia tenuifolia comm	Čarni et al., 2000	Trib 5	3	W Macedonia, MK
17	Euphorbia-Plantagineteum holostei Mitevski 1994	Mitevski, 1994	Trib 19	15	Bistrička, MK
18	Euphorbia-Plantagineteum holostei Mitevski 1994	Mitevski, 1994	Trib 28	16	Bistrička, MK
19	Kretaria-Festucetum stipitovi Mitevski 1978	Mitevski, 1978	Trib 4	22	Maleš, Pirot, MK

Legend to the Tab. 1. – continued

Column	Association	Source	Table	Number of relevés	Region
20	<i>Genista-Agrostidetum hyacinthae</i> Micevski 1978	Micevski, 1978	Tab. 3	14	Maleš, Pijanec, MK
21	<i>Hypoxis-Trientalum trichopterum Rund. et Stom.</i> (1983) 1986	Randelić et al., 1991	Tab. 1	5	Rujan mountain, Yu
22	<i>Koelerio-Sileneum frumenti-Kwaneae Rund. et Stom.</i> (1983) 1986	Randelić et al., 1991	Tab. 2	6	Rujan mountain, Yu
23	<i>Serbo-Polygonetum arenariae Ruzić 1976</i>	Ruzić, 1978	Tab. 1	9	Pirogulje, Yu
24	<i>Trifolio-Festucetum vallesiacae Randeljović et al. 1979</i>	Randelić et al., 1979	Tab. 7	10	NF Krsovo Yu
25	<i>Astragalo-Cotyledonetum glomeratae Hír et Randi 1973</i>	Randelić et al., 1979	Tab. 6	9	NF Krsovo Yu
26	<i>Batrachopus-Brychydryetum pinnatifoliae</i> Micevski 1971	Micevski, 1971	Tab. 3	44	Gentiu Macedonia, MK
27	<i>Echinino-Corydalietaum affineoleae Radjen 1979</i>	Radjen, 1979	Tab. 1	6	Pitzen, Kosovo Yu
28	<i>Astragalo-Molinietum Micevski 1971</i>	Micevski, 1971	Tab. 4	27	Gentiu Macedonia, MK
29	<i>Heleanthemo-Euphorbietum tessulae Micevski 1973</i>	Micevski, 1973	Tab. 2	44	Maleš, Pijanec, MK
30	<i>Heleanthemo-Euphorbietum tessulae Micevski 1973</i>	Micevski, 1973	Tab. 1	29	Kočani, Veleš, MK
31	<i>Erysino-Trifolietum Micevski 1977</i>	Micevski, 1977	Tab. 2	28	Rudovci, Štip, Kratovo, MK
32	<i>Erysino-Trifolietum Micevski 1977</i>	Micevski, 1977	Tab. 1	25	Sk. Gora, Petrovac, Kral., Razničnica, MK
33	<i>Erysino-Trifolietum Micevski 1977</i>	Micevski, 1977	Tab. 3	32	Veleš, MK
34	<i>Juncico-Inseetum myrianthi</i> Micevski 1972	Micevski, 1972	Tab. 7	40	Macedonia
35	<i>Juncico-Inseetum myrianthi</i> Micevski 1972	Konstantinou, 1992	Tab. 4	23	N Greece
36	<i>Lina-Potentiatum cornifoliae Konstantinou 1992</i>	Konstantinou, 1992	Tab. 7	10	N Greece
37	<i>Achilleo-Centaurietum ciliolaceophylleae Konstantinou 1992</i>	Konstantinou, 1992	Tab. 6	12	N Greece
38	<i>Diantho-Festucaum incani Micevski et Mitevska 1984</i>	Konstantinou, 1992	Tab. 5	15	N Greece
39	<i>Festuco-Polygonetum serpentinum Rund. et Ruzić 1982</i>	Randelić et al., 1983	Tab. 1	11	SE Serbia
40	<i>Trifolium tenellifolium-Aegopodium lorenii comm.</i>	Konstantinou, 1992	Tab. 11	10	N Greece
41	<i>Asterolin-Thymetum plosionii Konstantinou 1992</i>	Konstantinou, 1992	Tab. 9	10	N Greece
42	<i>Ajaksietum helictichi Konstantinou 1992</i>	Konstantinou, 1992	Tab. 10	10	N Greece
43	<i>Minuartia-Allyssetum mundis Konstantinou 1992</i>	Konstantinou, 1992	Tab. 8	30	N Greece
44	<i>Alyssum repens-Centaurea bovinae comm.</i>	Konstantinou, 1992	Tab. 13	7	N Greece
45	<i>Alyssum monanthemum-Holcus adolecens comm.</i>	Konstantinou, 1992	Tab. 14	10	N Greece
46	<i>Plantago officinalis-Potentilla ostruthia comm.</i>	Konstantinou, 1992	Tab. 15	10	N Greece
47	<i>Satureja pilosa-Potentilla ostruthia comm.</i>	Konstantinou, 1992	Tab. 12	10	N Greece
48	<i>Minuartia bulgarica-Dianthus pinnifolius ssp. bulgaricus comm.</i>	Konstantinou, 1992	Tab. 19	7	N Greece
49	<i>Nicotiana tabacum-Silene campestris comm.</i>	Konstantinou, 1992	Tab. 17	10	N Greece
50	<i>Genista ptychospermae pinifolius ssp. pinifolius comm.</i>	Konstantinou, 1992	Tab. 18	7	N Greece
51	<i>Jasione helietrichii-Apera sparteoides comm.</i>	Konstantinou, 1992	Tab. 16	10	N Greece

The floristic similarity with alliances appearing on serpentine, the *Koelerio-Festucion* and the *Alyssion muralis*, is very low.

Astragalo-Potentilletalia and *Festuco-Brometea* species are also more abundant in grasslands than in saum.

Galio-Urticetea species (*Cruciata laevipes*, *Epilobium montanum*, *Galium aparine*, and *Geum urbanum*) and *Molinio-Arrhenatheretea* species (*Dactylis glomerata*, *Lotus corniculatus*, *Prunella vulgaris*, *Bellis perennis*, *Cynosurus cristatus*, *Poa sylvicola*, etc.) are good positive differential species of *Trifolio-Geranietea* as against *Festuco-Brometea*. These species indicate the higher moisture of sites.

Species of the classes *Elyno-Seslerietea* Br.-Bl. 1948 and *Caricetea curvulae* Br.-Bl. 1948 (*Campanula spatulata* subsp. *spatulata*, *Galium oreophilum*, *Pimpinella tragium*, *Ranunculus oreophilus* subsp. *balcanicus*, etc.) thrive at higher altitudes and appear only in communities of the classes *Trifolio-Geranietea* and *Festuco-Brometea* (alliance *Armerio-Potentillion*).

***Lathyro laxiflori-Trifolienion velenovskyi* suball. nova hoc loco** (Nom. type *Trifolietum velenovskyi-alpestris* Čarni et al. 2000)

The associations were classified within *Geranion sanguinei*. An attempt was made to classify the associations at a suballiance level. In southeastern Europe there are two suballiances of *Geranion sanguinei*: *Geranienion sanguinei* R. Tx. in Müller 1962 in the area of dry grasslands of the *Brometalia erecti* Br.-Bl. 1936 and *Dictamno-Ferulagenion* van Gils et al. 1975 in the area of distribution of *Scorzonero-Chrysopogonetalia* Horvat et Horvatić 1958 (VAN GILS et al. 1975; ČARNI 1997). The *Dictamno-Ferulagenion* is characterized by only a few characteristic species such as *Knautia illyrica*, *Ferulago galbanifera*, and *Paeonia officinalis* but is well differentiated by many species originating from *Quercetalia pubescantis* and *Festuco-Brometea* (mainly of *Scorzonero-Chrysopogonetalia*).

It was decided to describe the new suballiance *Lathyro laxiflori-Trifolienion velenovskyi*, with the following characteristic species: *Chamaecytisus heuffelii*, *Digitalis viridiflora*, *Dorycnium herbaceum* var. *macedonicum*, *Trifolium medium* subsp. *balcanicum*, and *Trifolium velenovskyi*.

The differential species toward *Geranienion sanguinei* and *Dictamno-Ferulagenion* are those of *Astragalo-Potentilletalia* s. lat (comp. Tab. 1) and certain forest species of *Fagion moesicae*, *Quercion petraeae-cerris*, and *Quercion frainetto* such as *Abies borisii-regis*, *Artemisia agrimonoides*, *Digitalis lanata*, *Knautia drymeia*, *Quercus frainetto*, etc.

The vegetation of *Lathyro-Trifolienion* appears on forest edges in more humid and cooler areas at altitudes from 900 to 1300 meters. It is more frequent on silicate bedrock, since this substratum contains more moisture than carbonate bedrock. The vegetation was sampled all over the Republic of Macedonia, but it can be presumed that this vegetation can appear in the whole distribution area of *Astragalo-Potentilletalia*.

***Trifolietum velenovskyi-alpestris* ass. nova hoc loco** (Tab. 2/20–41, Tab. 1/12, nom. type Tab. 2/13)

Tab. 2. Analytical table of *Trifolium velenovskyi* – *alpestris* association.

Relevé number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Date of relevé	23	23	27	27	28	30	4	4	4	4	4	4	4	4	30	30	30	30	30	30	30	30
Month of relevé	6	6	6	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6
Year of relevé	98	98	98	98	98	98	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
Altitude in 10 m	116	117	147	144	144	130	143	133	130	106	118	140	142	135	137	132	138	103	142	136	136	136
Aspect	S	NW	S	SW	S	E	NW	W	W	WW	W	NNW	W	NW	W	W	NW	W	NW	NW	NW	NW
Slope in degrees (°)	2	10	10	10	20	5	10	5	5	10	5	10	5	10	5	10	5	10	10	10	35	15
Relevé area – m ²	10	10	20	8	15	10	10	8	8	10	10	15	15	10	8	10	15	10	15	8	5	10
Number of species	42	46	47	39	54	41	52	44	55	49	44	53	48	39	35	38	47	58	52	40	46	22
Character species																						
<i>Trifolium alpestre</i>	5	4	4	4	4	2	2	4	2	3	3	4	2	3	3	4	3	2	3	3	3	3
LATHYRO-TRIFOLIETON																						
<i>Trifolium velenovskyi</i>																						
<i>Digitalis virgaeflora</i>																						
<i>Dactylis herbaceum</i> var. <i>macedonicum</i>																						
<i>Trifolium medium</i> ssp. <i>medium</i>																						
<i>Trifolium medium</i> ssp. <i>bakranicum</i>																						
TG GERANIUM SANGUINEI, ORIGANETEA, TRIFOLO-GERANIEETA																						
<i>Hypoxis perfoliata</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Chionopodium vulgare</i>	+	+	+	+	+	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Leucanthemum chamaedrys</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Poa pratensis</i> ssp. <i>angustifolia</i>	+	+	+	+	1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Fragaria viridis</i>	1	2	+	+	+	1	+	+	+	1	+	+	1	+	+	+	+	+	+	+	3	+
<i>Agrimonia eupatoria</i>	+	+	+	+	+	2	+	+	+	+	1	+	1	+	+	+	+	+	+	+	+	+
<i>Arabis sagittata</i>	+	+	+	+	+	1	+	+	+	+	1	+	1	+	+	+	+	+	+	+	+	+
<i>Hypoleium barbatulum</i>																						
<i>Orogenium vulgare</i>																						
<i>Silene nutans</i>																						
<i>Geranium sanguineum</i>																						
<i>Glyptodon album</i>																						

Tab. 2. - continued

A ARTEMISIETEA, GALIO-URTICETEA

- | | |
|---------------------------|--|
| <i>Cucubita lempipes</i> | MA. MOLINIO-ARPAENATHERETEA |
| <i>Geum urbanum</i> | <i>Dactylis glomerata</i> |
| <i>Anthemis tinctoria</i> | <i>Festuca rubra</i> ssp. <i>ciliata</i> |
| <i>Tanacetum vulgare</i> | <i>Festuca rubra</i> ssp. <i>rubra</i> |
| <i>Artemisia alba</i> | <i>Plantago lanceolata</i> |
| <i>Silene alba</i> | <i>Anthoxanthum odoratum</i> |
| | <i>Trifolium repens</i> |
| | <i>Leucanthemum vulgare</i> |
| | <i>Rumex acetosa</i> |
| | <i>Lathyrus pratensis</i> |
| | <i>Hieracium pilosella</i> |
| | <i>Cynosurus cristatus</i> |
| | <i>Bells perennis</i> |
| | <i>Infusaria pratense</i> |
| | <i>Campanula patula</i> |
| | <i>Paeonia syriaca</i> |
| | <i>Rhinanthus minor</i> |
| | <i>Stellaria graminea</i> |
| | <i>Lobelia corniculata</i> var. <i>corniculata</i> |
| | <i>Achillea millefolium</i> |
| | <i>Ranunculus bulbosus</i> |
| | <i>Hippophae rhamnoides</i> |

Tab. 2. — continued

Relative number			V	W	V	W
	<i>Punica vulgaris</i>		2	2	2	2
	<i>Festuca pratensis</i> ssp. <i>pratensis</i>		2	2	2	2
	<i>Thlaspium lucidum</i>		2	2	2	2
	<i>Koeleria avensis</i>		2	2	2	2
	<i>Ranunculus pyrenaicus</i>		2	2	2	2
			18	14	14	14
FB			22	21	21	22
	<i>FESTUCA-BROMETEA</i>					
	<i>Helianthemum nummularium</i> ssp. <i>nummularium</i>					
	<i>Gaultheria veitchii</i>					
	<i>Bachymodium pluriflorum</i>					
	<i>Festuca rubescens</i>					
	<i>Euphorbia cyparissias</i>					
	<i>Saxifraga columbaria</i>					
	<i>Thymus roseus</i> var. <i>degenii</i>					
	<i>Achillea seducta</i>					
	<i>Eryngium campestre</i>					
	<i>Koeleria macrantha</i>					
	<i>Hieracium procneum</i> ssp. <i>baeticum</i>					
	<i>Betula mediterranea</i>					
	<i>Luzula canophyllea</i>					
	<i>Linum catharticum</i>					
	<i>Stachys nemorum</i>					
	<i>Songarica minor</i>					
	<i>Leontodon hispidus</i> ssp. <i>hispidus</i>					
	<i>Pimpinella saxifraga</i>					
	<i>Inflorescens campestris</i>					
	<i>Thymus pulegioides</i>					
	<i>Asphodelus albus</i>					
	<i>Thesium divaricatum</i>					
	<i>Veronica incana</i>					
	<i>Leontopodium hispidus</i>					
	<i>Lotus corniculatus</i> var. <i>ellipticus</i>					
	<i>Medicago lupulina</i>					
	<i>Bromus secalinus</i> et var. <i>villosus</i>					
	<i>Ceratostigma plumieri</i>					
	<i>Silene otites</i>					
	<i>Aira capillaris</i>					
	<i>Gymnadenia conopsea</i>					

Tab. 2. – continued

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
+ +	+ +	+ +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Festuca fraracea</i> ssp. <i>violaceo-sordida</i>																					
<i>Potentilla inclinata</i>																					
<i>Prunella laciniata</i>																					
<i>Trollius phryganoides</i>																					
<i>Potentilla argentea</i> var. <i>tenulifolia</i>																					
<i>Bromus erectus</i>																					
<i>Arenaria leptophylla</i> f. <i>viscidula</i>																					
<i>Campanula glomerata</i>																					
<i>Carex stans</i>																					
<i>Potentilla sulphurea</i>																					
<i>Nepeta panormica</i>																					
<i>Gentia caerulea</i>																					
<i>Asperula cynanchica</i>																					
<i>Filipendula vulgaris</i>																					
<i>Muscaris comosum</i>																					
<i>Dianthus caryophyllus</i>																					
<i>Omphalogramma camosum</i>																					
<i>Euphorbia glauca</i>																					
<i>Achillea collina</i>																					
<i>Cinerea acuminifolia</i>																					

CC CARCIFERAE

Aeonium arboreum ssp. *mediterraneum*
Senecio pyrenaicus ssp. *propinquus*
Paeonia officinalis
Comptonia peregrina ssp. *spiculata*
Silene nocturna

ES ERYTHROXYLACEAE

Gilia integrifolia
Ramunculus occidentalis ssp. *bicolor*
Primula parryi

QF QUERICOFAGETEA RHAMNO-PRUNETEA

Poa nemoralis
Luzula forsteri
Primula elatior ssp. *survolvens*
Campanula sparsa
Arenaria agrestoides

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Tab. 2. – continued

Relevé number	7	7	6	5	4	2	15	12	12	8	7	6	6	5	4	3	2	2
<i>Krautia drymiae</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Viola reichenbachiana</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Lathyrus laxiflorus</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Euphorbia amygdaloides</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Mrysotis sylvatica</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Veronica officinalis</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Luzula pilosa</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Saxifraga holosteoides</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Dianthus barbatus</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Ace. obtusatum iov.</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Potentilla aquatica</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Fragaria ananassa</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Bartsia sylvestris</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Festuca heterophylla</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Lathyrus coronaria</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Gaultheria odoratissima</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Hieracium sylvaticum</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Cephaelis alba</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Crataegus monogyna</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Quercus petraea</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

OTHER SPECIES
Fragaria vesca
Chamaesyce sagittale
Veronica chamaedrys
Luzula luteola
Rosa sp.
Thlaspi perfoliatum
Poa bulbosa f. vivipara
Beschimantia flexuosa
Hypnum cupressiforme
Cirsium sp.
Dianthus deltoides
Juncus communis
Polygonum polycarpon
Carex echinata
Hypochaeris maculata
Vicia sepium
Centaurium erythraea

Tab. 2. – continued

Relevé number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
<i>Violaceae</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
<i>Violaceae</i> sp.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
<i>Potentilla inclinata</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

Species of low frequency: 1. *Bromus hordeaceus* ssp. *hordeaceus* +; *Potentilla obscura* +; *Ranunculus psilotachys* +; 2. *Chaerophyllum temulentum* +; *Cichorium intybus* +; *Dianthus leucophoeniceus* +; *Eryngium palmatum* +; *Ostrya carpinifolia* +; *Stachys sylvatica* +; 3. *Cerastium brachypetalum* I, *Silene viridiflora* I, *Anthyllis vulneraria* ssp. *macedonica* var. *bulgariaca* +; *Asyneuma limonifolium* +; *Crupina vulgaris* +; *Elymus hispidus* ssp. *barbuleatus* +; *Festuca hiemuginata* +; *Geranium columbinum* +; *Lactuca viminea* +; *Stachys recta* +; 4. *Muscaria racemosum* +; *Petrorhagia saxifraga* +; *Potentilla pedata* +; *Silene italica* +; 5. *Agrostis canina* I, *Cerastium petricola* I, *Cruciata pedemontana* I, *Phleum phleoides* I, *Achillea coarctata* +; *Arabis laxa* +; *Bromus tectorum* +; *Centaurea napulifera* +; *Cynosurus echinatus* +; *Erysimum diffusum* +; *Hypochoeris cretensis* +; *Linaria dalmatica* ssp. *macedonica* +; *Potentilla detommasii* var. *holosericea* +; *Rubus schleicheri* +; *Scabiosa trinifolia* +; *Scleranthus perennis* +; *Torilis arvensis* +; *Trifolium glomeratum* +; *Trifolium ochroleucon* +; *Trifolium phleoides* +; *Veronica dilenii* +; *Vicia sativa* ssp. *nigra* +; *Vulpia myuros* +; 6. *Melica uniflora* 3, *Ajuga reptans* I, *Fragaria moschata* I, *Cardamine bulbifera* f. *pilosa* +; *Carlina vulgaris* +; *Cerastium gracile* +; *Erophila verna* +; *Hypochaeris radicata* +; *Leontodon incanus* +; *Scrophularia nodosa* +; *Taraxacum officinale* +; 7. *Brachythecium* sp. +; *Capsella bursa-pastoris* +; *Galium schultesii* +; *Scleranthus annuus* +; 8. *Colchicum autumnale* +; *Elymus repens* +; *Euphorbia serrula* +; *Pulmonaria officinalis* +; 9. *Ajuga genevensis* +; *Cirsium lanceolatum* +; *Dicranum scoparium* +; *Lathyrus nissolia* +; *Lathyrus sativus* +; *Lathyrus sphacelatus* +; *Moehringia trinervia* +; *Phleum pratense* +; *Rhytidadelphus triquetus* +; 10. *Galium aparine* +; *Geranium reflexum* +; *Holcus lanatus* +; *Hypericum cerasitoides* +; *Inula spiraeifolia* +; *Lysimachia punctata* +; *Mentha aquatica* +; 11. *Thymus macedonicus* 2, *Cruciata glabra* +; *Hypericum olympicum* +; *Lathyrus aphaca* +; *Linum holinorum* +; *Physospermum cornubiense* +; *Rubus canescens* var. *canescens* +; *Trifolium arvense* +; 13. *Asphodeline lutea* +; *Fagus sylvatica* +; *Picromnon acarna* +; *Verbasium densiflorum* +; 14. *Calamagrostis arundinacea* +; *Hylocomium splendens* +; *Plantago holosteum* +; *Rubus caesius* +; 15. *Vicia hirsuta* +; 16. *Abies borisii-regis* +; *Erysimum kuemmerlei* +; *Hieracium racemosum* +; *Neottia nidus-avis* +; 17. *Cornus mas* +; *Draba muralis* +; *Potentilla laciniosa* +; *Ribes alpinum* +; 18. *Anchusa officinalis* +; *Chamaesyce austriacus* +; *Viola odora* +; 19. *Cirsium appendiculatum* +; *Daphne oleoides* +; *Festuca drymeia* +; *Poa compressa* +; *Prunus spinosa* juv. +; 20. *Lathyrus latifolius* +; *Liriodendron tulipifera* +; *Malva moschata* +; *Omalotheca syriaca* +; *Platanthera chlorantha* +; 21. *Lemnophyton nigricans* +; 22. *Polygala comosa* +; *Rumex thyrsiflorus* +.

This is the most widely spread association of the suballiance. It can be found on silicate bedrock and sporadically on carbonate bedrock at altitudes from 1100 to 1400 meters all across the Republic of Macedonia. The dominant species is *Trifolium alpestre*, but a new association was described. Because a suballiance character species exists, a new association should be described (OBERDORFER 1968, MUCINA 1991). The association appears at sunny forest edges on the following localities: 1. Stogovo; 2. Stogovo near the village Gari; 3,4 under mountain pass on Galičica; 5. Pelister, near the hotel Molika, forest edge; 6. village Liseč above cableway, forest edge; 7,9,12,13 Skopska Crna Gora; 8. above Mavrovo; 10. Berovo, near the lake; 11. Berovo, Ogažden; 14. Berovo beside the lake; 15,18 above the road between Mavrovo and Nikiforovo; 16. above the road between Mavrovo and Gostivar; 17,21,22 Mavrovo; 19. above Mavrovo; 20. Mavrovi Anovi.

Lathyrō laxiflori-Trifolietum balcanici ass. nova hoc loco.

(Tab. 3/1–7; Tab. 1/13; nom. type Tab. 3/1)

The association appears in the western part of the Republic Macedonia (Pelister, Popova Šapka, Patiška Reka) on silicate bedrock. The sites of this community are the most sciophilous of all the communities studied. Not many species of meadows and dry grasslands appear here, but forest species are well represented.

Tab. 3. Analytical table of the *Lathyrō laxiflori-Trifolietum balcanici* association.

Relevé number	1	2	3	4	5	6	7		
Date of relevé	28	28	30	30	26	28	30		
Month of relevé	6	6	6	6	6	6	6		
Year of relevé	98	98	98	98	98	98	98		
Altitude in 10 m	141	138	137	130	103	128	117		
Aspect	NE	NW	SW	E	N	N	E		
Slope in degrees (°)	40	25	10	10	55	20	20		
Relevé area - m ²	10	10	8	10	7	10	10		
Number of species	35	32	24	29	39	20	52		
Character species									
<i>Trifolium medium</i> ssp. <i>balcanicum</i>	4	4	4	5	4	5	5	7	V
TG	GERANIUM SANGUINEI, ORIGANETALIA, TRIFOLIO-GERANIETEA								
<i>Clinopodium vulgare</i>	+	1	2	1	1	+	+	7	V
<i>Hypericum barbatum</i>	+	+	1	+	.	+	.	3	III
<i>Vicia tenuifolia</i>	+	+	.	.	+	+	.	3	III
<i>Fragaria vesca</i>	1	1	.	.	.	2	.	3	II
<i>Fragaria moschata</i>	.	.	+	+	.	.	+	3	II
<i>Hypericum perforatum</i>	+	.	.	.	+	.	.	2	II
<i>Trifolium velenovskyi</i>	.	.	.	+	.	.	+	2	II
<i>Coronilla varia</i>	.	.	.	+	1	.	.	2	II
<i>Fragaria viridis</i>	.	.	.	.	2	.	.	1	I
<i>Digitalis viridiflora</i>	1	.	.	.	.	.	.	1	I
<i>Origanum vulgare</i>	.	.	.	.	+	.	.	1	I

Tab. 3. – continued

	Relevé number	1	2	3	4	5	6	7	
GU	GALIO-URTICETEA								
	<i>Heracleum sphondylium</i>	+	+	.	+	+	.	.	2
	<i>Epilobium montanum</i>	+	.	+	+	+	.	.	2
	<i>Geranium robertianum</i>	.	.	.	+	+	.	.	2
MA	MOLINIC-ARRHENATHERETEA								
	<i>Dactylis glomerata</i>	+	.	.	+	.	1	+	3
	<i>Rumex acetosella</i>	+	.	.	+	+	.	.	2
	<i>Holcus lanatus</i>	.	+	.	+	+	.	+	2
	<i>Trifolium repens</i>	.	.	+	+	+	.	+	2
	<i>Leucanthemum vulgare</i>	.	.	.	+	+	.	+	2
	<i>Poa trivialis</i> subsp. <i>sylvicola</i>	.	.	.	+	+	.	+	2
FB	FESTUCO-BROMETEA								
	<i>Euphorbia cyparissias</i>	+	.	1	+	.	.	1	3
	<i>Cerastium brachypetalum</i>	.	+	+	+	.	.	+	3
	<i>Hieracium proeulatum</i> ssp. <i>bauhinii</i>	.	.	+	+	.	.	+	3
	<i>Thymus longicaulis</i>	.	.	+	+	.	.	+	3
	<i>Achillea setacea</i>	.	.	+	+	.	.	.	2
	<i>Carlina vulgaris</i>	.	.	+	+	.	.	+	2
QF	QUERCO-FAGETEA								
	<i>Poa nemoralis</i>	2	1	2	+	+	.	1	6
	<i>Viola reichenbachiana</i>	+	+	+	+	+	.	+	5
	<i>Brachypodium sylvaticum</i>	3	1	.	3	.	.	.	3
	<i>Rubus schleicheri</i>	2	1	.	+	+	.	.	3
	<i>Anemone nemorosa</i>	+	+	.	+	.	.	.	3
	<i>Sanicula europaea</i>	+	3	.	1	.	.	.	3
	<i>Mycelis muralis</i>	+	+	.	1	.	.	.	3
	<i>Primula vulgaris</i>	+	+	.	1	.	.	.	3
	<i>Euphorbia amygdaloides</i>	+	+	.	1	.	.	+	3
	<i>Veronica officinalis</i>	+	.	+	+	+	.	.	3
	<i>Festuca heterophylla</i>	+	.	1	+	+	.	.	3
	<i>Myasitis sylvatica</i>	.	.	+	+	+	+	.	3
	<i>Lathyrus laxiflorus</i>	+	+	.	+	.	.	.	2
	<i>Calamintha grandiflora</i>	1	+	.	+	.	.	.	2
	<i>Abies borisii-regis</i>	1	1	.	+	+	.	.	2
	<i>Cardamine bulbifera</i> f. <i>pilosa</i>	+	.	+	+	+	.	.	2
	<i>Scrophularia nodosa</i>	.	.	+	+	+	.	.	2
	<i>Luzula forsteri</i>	.	.	.	1	+	.	.	2
	<i>Artemisia agrimonoides</i>	.	.	.	+	+	.	.	2
	<i>Pteridium aquilinum</i>	.	.	.	1	.	+	.	2
	<i>Knautia drymeia</i>	.	.	.	+	+	2	2	II
	OTHER SPECIES								
	<i>Veronica chamaedrys</i>	1	+	+	+	+	+	+	V
	<i>Carex echinata</i>	+	+	.	+	.	.	.	3
	<i>Epilobium angustifolium</i>	+	+	.	+	.	.	.	3
	<i>Ajuga reptans</i>	+	+	.	+	.	.	.	2
	<i>Oxalis acetosella</i>	.	3	.	1	.	.	.	2
	<i>Salix caprea</i>	.	+	.	+	.	.	.	2
	<i>Geum molle</i>	.	.	+	+	.	.	.	2
	<i>Picris hieracioides</i>	.	.	+	+	.	.	+	2
	<i>Venetaneta dubia</i>	.	.	+	+	.	.	+	2
	<i>Vicia hirsuta</i>	.	.	+	+	.	.	+	2
	<i>Populus tremula</i> juv.	.	.	.	+	.	+	2	II

Species of low frequency: 1. *Galium divaricatum* +, *Geranium macrorrhizum* +, *Lonicera alpigena* ssp. *formanekiana* +, *Sorbus aria* juv. +, *Thalictrum aquilegifolium* +; 2. *Geranium phaeum* 2, *Athyrium filix-femina* +, *Hieracium murorum* +, *Lamiastrum galeobdolon* +, *Lilium martagon* +, *Lysimachia punctata* +; 3. *Campanula spatulata* ssp. *spatulata* +, *Cirsium* sp. +, *Galium album* 2, *Leontodon crispus* ssp. *crispus* +, *Trifolium pratense* +; 4. *Lathyrus pratensis* 1, *Ajuga genevensis* +, *Fagus moesica* +, *Galium oreophilum* +, *Lychnis coronaria* +, *Melica uniflora* +, *Quercus pubescens* +, *Silene dioica* +; 5. *Dryopteris filix-mas* 1, *Aegopodium podagraria* +, *Asperula cynanchica* +, *Dactylorhiza cordigera* +, *Doronicum columnae* +, *Linum catharticum* +, *Moehringia trinervia* +, *Omalotheca sylvatica* +, *Prunella vulgaris* +, *Rosa* sp. +, *Ranunculus repens* +, *Rubus idaeus* +, *Saxifraga rotundifolia* +, *Tussilago farfara* +; 6. *Brachypodium pinnatum* 3, *Festuca hirtovaginata* 2, *Equisetum arvense* 1, *Astragalus glycyphyllos* +, *Galium aparine* +, *Silene vulgaris* +; 7. *Hypochoeris maculata* 1, *Alchemilla acutiloba* +, *Anthoxanthum odoratum* +, *Atropa belladonna* +, *Briza media* +, *Chaerophyllum aureum* +, *Crepis biennis* +, *Cynosurus cristatus* +, *Daucus carota* +, *Euphrasia pectinata* +, *Festuca pratensis* ssp. *pratensis* +, *Festuca rubra* ssp. *rubra* +, *Festuca valesiaca* +, *Galium verum* +, *Gymnadenia conopsea* +, *Hypochoeris radicata* +, *Linum hologynum* +, *Listera ovata* +, *Lotus corniculatus* var. *ciliatus* +, *Luzula campestris* +, *Plantago lanceolata* +, *Polygala vulgaris* +, *Potentilla laciniosa* +, *Ranunculus oreophilus* ssp. *balcanicus* +, *Sanguisorba minor* +, *Stellaria graminea* +, *Stellaria holostea* +, *Trifolium campestre* +, *Trisetum flavescens* +.

Locatities: 1,2. Pelister, Palisnopje; 3. above Tetovo, forest edge; 4. village Liseć under Popova Šapka, forest edge; 5. Patiška Reka, forest edge; 6. Pelister, behind the children's holiday home, forest edge; 7. village Gajre, above cable railway, forest edge.

Chamaecytiso heuffelii-Trifolietum mediī ass. nova hoc loco

(Tab. 4/1–4, Tab. 1/14, nom. type Tab. 4/2)

Tab. 4. Analytical table of the *Chamaecytiso heuffelii-Trifolietum mediī* association.

Relevé number	1	2	3	4
Date of relevé	27.6.	27.6.	27.6.	24.6.
Year of relevé	98	98	98	98
Altitude in m	930	960	910	1120
Aspect	SW	SW	S	E
Slope in degrees (°)	2	2	20	2
Relevé area – m ²	10	15	15	20
Number of species	45	44	24	50
Character species				
<i>Trifolium medium</i> ssp. <i>medium</i>	4	4	3	4
<i>LATHYRO-TRIFOLIENION</i>				
<i>Dorycnium herbaceum</i> var. <i>macedonicum</i>	1	2	2	-
<i>Chamaecytisus heuffelii</i>	2	3	3	-
<i>Vicia sativa</i> ssp. <i>nigra</i>	-	+	+	+
<i>Vicia villosa</i> ssp. <i>varia</i>	+	-	-	-

Tab. 4. – continued

	Relevé number	1	2	3	4	
TG	<i>GERANIUM SANGUINEI, ORIGANETALIA, TRIFOLIO-GERANIETEA</i>					
	<i>Hypericum perforatum</i>	1	+	+	+	4
	<i>Clinopodium vulgare</i>	2	2	.	1	3
	<i>Agrimonia eupatoria</i>	1	1	+	.	3
	<i>Silene viscaria</i>	+	+	.	.	2
	<i>Silene vulgaris</i>	+	+	.	.	2
	<i>Vicia dalmatica</i>	+	+	.	.	2
	<i>Fragaria viridis</i>	.	1	.	+	2
	<i>Arabis sagittata</i>	.	+	.	+	2
	<i>Poa pratensis</i> ssp. <i>angustifolia</i>	+	.	.	.	1
	<i>Teucrium chamaedrys</i>	*	*	.	+	1
MA	<i>MOLINIO-ARRHENATHERETEA</i>					
	<i>Dactylis glomerata</i>	+	+	+	.	3
	<i>Plantago lanceolata</i>	+	+	.	+	3
	<i>Prunella vulgaris</i>	+	.	+	.	2
	<i>Iragopogon pratensis</i>	+	.	+	.	2
	<i>Trisetum flavescens</i>	.	+	.	2	2
	<i>Poa sylvicola</i>	.	+	.	+	2
FB	<i>FESTUCO-BROMETEA</i>					
	<i>Hieracium praealtum</i> ssp. <i>bauhinii</i>	+	+	+	.	3
	<i>Trifolium campestre</i>	+	+	+	.	3
	<i>Lotus corniculatus</i> var. <i>ciliatus</i>	+	+	.	3	3
	<i>Sanguisorba minor</i>	+	+	.	2	3
	<i>Thymus longicaulis</i>	+	.	1	+	3
	<i>Cynosurus echinatus</i>	1	+	.	.	2
	<i>Crucianella graeca</i>	.	+	+	+	2
	<i>Medicago lupulina</i>	.	+	.	+	2
	<i>Achillea setacea</i>	.	.	+	3	2
QF	<i>QUERCO-FAGETEA</i>					
	<i>Brachypodium sylvaticum</i>	1	1	+	.	3
	<i>Quercus frainetto</i> juv.	+	+	1	.	3
	<i>Vicia grandiflora</i>	+	+	+	.	3
	<i>Poa nemoralis</i>	1	.	+	.	2
	<i>Lathyrus laxiflorus</i>	+	.	1	.	2
	<i>Luzula forsteri</i>	+	.	+	.	2
	OTHER SPECIES					
	<i>Veronica chamaedrys</i>	+	+	+	.	3
	<i>Poa bulbosa</i> f. <i>vivipara</i>	+	+	.	+	3
	<i>Geranium columbinum</i>	+	+	.	.	2
	<i>Picris hieracioides</i>	+	.	+	.	2
	<i>Cerastium brachypetallum</i>	.	1	.	1	2
	<i>Galium oreophilum</i>	.	1	.	+	2
	<i>Veronica arvensis</i>	.	+	.	+	2
	<i>Pimpinella tragium</i>	.	.	+	+	1
	<i>Ranunculus millefoliatus</i>	.	.	.	+	1

The association was sampled in the western part of the country on silicate bedrock. The dominant species is *Trifolium medium* subsp. *medium*. It is the same dominant species as in the *Trifolio-Agrimonietum* of the *Trifolion medii* found in Central Europe. However, *Trifolion medii* appears alone in Central Europe, while in the rest of Europe, the species of *Geranium sanguinei* and *Trifolion medii* grow together and the communities are classified within *Geranium sanguinei*. This classification into another alliance was the reason for the

classification within an autonomous association; otherwise, we would lose the hierarchy. The sites are dry and more exposed to the sun than those of the *Lathyro-Trifolietum balcanici*. The association can be found at altitudes from 900 to 1400 meters.

Species of low frequency: 1. *Bellis perennis* +, *Bilderdykia convolvulus* +, *Cichorium intybus* +, *Convolvulus althaeoides* ssp. *tenuissimus* +, *Epipactis atrorubens* +, *Galium schultesii* +, *Helianthemum nummularium* ssp. *nummularium* +, *Hordeum bulbosum* +, *Lathyrus sphaericus* +, *Lepidium campestre* +, *Phleum phleoides* +, *Sympytum tuberosum* +, *Torilis arvensis* +, *Trifolium ochroleucum* +; 2. *Festuca heterophylla* 1, *Arenaria leptoclados* var. *viscidula* +, *Astragalus glycyphyllos* +, *Campanula ramosissima* +, *Carex caryophyllea* +, *Erophila verna* +, *Geum urbanum* +, *Myosotis sylvatica* +, *Silene italica* +, *Sorbus torminalis* +, *Vicia hirsuta* +, *Vicia loiseleurii* +; 3. *Lathyrus niger* +, *Trifolium angustifolium* +, *Trifolium arvense* +; 4. *Coronilla varia* 3, *Leucanthemum vulgare* 2, *Anthoxanthum odoratum* 1, *Clematis vitalba* 1, *Agrostis canina* +, *Carex echinata* +, *Cirsium* sp. +, *Cruciata laevipes* +, *Cynosurus cristatus* +, *Eryngium campestre* +, *Euphrasia pectinata* +, *Festuca rubra* ssp. *rubra* +, *Festuca valesiaca* +, *Galium verum* +, *Hieracium pilosella* +, *Hypochoeris radicata* +, *Luzula campestris* +, *Muscaris comosum* +, *Ononis spinosa* +, *Petrorhagia saxifraga* +, *Polygala vulgaris* +, *Potentilla argentea* var. *tenuiloba* +, *Potentilla reptans* +, *Ranunculus bulbosus* ssp. *aleae* +, *Rhinanthus rumelicus* +, *Tanacetum vulgare* +, *Taraxacum officinale* +, *Trifolium pratense* +.

Localities: 1–3 above the village Carina, forest edge; 4. village Bituše, forest edge.

Vicia varia comm. [*Geranion sanguinei*]

(Tab. 5/1–4, Tab. 2/15)

Vicia varia is the dominant species of the community. It was classified on the suballiance level since the ecological niche of the dominant species is too wide to describe an association. This community was found above Prespansko Lake at forest edges and in areas in the intensive process of reforestation.

Tab. 5. Analytical table of the *Vicia varia* and *Vicia tenuifolia* community.

	1	2	3	4	5	6	7		
Relevé number	1	2	3	4	5	6	7		
Date of relevé	28	27	28	28	23	23	23		
Month of relevé	6	6	6	6	6	6	6		
Year of relevé	98	98	98	98	98	98	98		
Altitude in 10 m	91	91	87	87	149	148	143		
Aspect	E	E	-	E	NW	NW	NW		
Slope in degrees (°)	5	15	-	3	30	25	15		
Relevé area - m ²	15	25	15	8	20	20	20	A	B
Number of species	31	43	33	47	32	36	40		
<i>Vicia varia</i> comm.									
<i>Vicia villosa</i> ssp. <i>varia</i>	4	4	4	4	.	.	.	4	0
<i>Vicia tenuifolia</i> comm.									
<i>Vicia tenuifolia</i>	.	.	.	.	3	3	4	0	3
TG GERANION SANGUINEI, ORIGANETALIA, TRIFOLIO-GERANIETEA									
<i>Clinopodium vulgare</i>	2	2	2	1	.	.	+	4	1
<i>Hypericum perforatum</i>	.	+	+	1	+	+	.	3	2

Tab. 5. – continued

	1	2	3	4	5	6	7		
Relevé number									
<i>Agrimonia eupatoria</i>	+	3	2	+	+	+	+	4	0
<i>Teucrium chamaedrys</i>	+	+	.	.	+	+	*	1	2
<i>Trifolium medium</i> subsp. <i>balcanicum</i>	1	.	.	.	.	.	.	1	0
<i>Poa pratensis</i> ssp. <i>angustifolia</i>	.	+	.	.	.	.	.	1	0
<i>Arabis sagittata</i>	.	.	.	.	+	.	.	0	1
<i>Origanum vulgare</i>	.	.	.	.	.	+	.	0	1
<i>Fragaria viridis</i>	.	.	.	.	.	.	1	0	1
<i>Hypericum barbatum</i>	.	.	.	.	.	.	+	0	1
A ARTEMISIETEA, GALIO-URTICETEA									
<i>Torilis arvensis</i>	1	+	1	.	.	.	.	3	0
<i>Galium aparine</i>	+	+	+	.	+	.	+	3	0
<i>Cruciata laevipes</i>	.	.	+	+	.	.	+	2	1
<i>Cirsium arvense</i>	+	+	.	.	+	.	.	2	0
<i>Bromus sterilis</i>	.	+	+	.	+	.	.	2	0
<i>Poa compressa</i>	.	+	+	.	+	.	.	2	0
<i>Geranium aristatum</i>	.	.	*	.	1	2	.	0	2
<i>Geum urbanum</i>	.	.	.	.	.	+	+	0	2
MA MOLINIO-ARRHENATHERETEA									
<i>Dactylis glomerata</i>	+	+	+	+	1	2	2	4	3
<i>Plantago lanceolata</i>	.	+	+	1	.	+	.	3	1
<i>Tragopogon pratensis</i>	+	+	+	.	.	.	.	3	0
<i>Trifolium pratense</i>	+	+	.	+	.	.	.	3	0
<i>Poa trivialis</i> subsp. <i>sylvicola</i>	+	.	.	1	.	+	.	2	0
<i>Rumex acetosella</i>	.	.	.	+	.	+	.	1	1
<i>Cynosurus cristatus</i>	.	.	.	+	.	.	+	1	1
<i>Achillea millefolium</i>	.	.	.	.	.	1	1	0	2
<i>Trisetum flavescens</i>	.	.	.	+	.	+	1	0	2
FB FESTUCO-BROMETEA									
<i>Lotus corniculatus</i> var. <i>ciliatus</i>	+	.	+	.	+	+	+	2	3
<i>Trifolium palidum</i>	+	+	1	2	.	.	.	4	0
<i>Eryngium campestre</i>	+	+	+	.	+	.	.	3	0
<i>Trifolium campestre</i>	.	+	.	2	+	.	.	2	1
<i>Leontodon crispus</i> ssp. <i>crispus</i>	.	+	+	.	+	+	+	1	2
<i>Helianthemum nummularium</i> ssp. <i>nummularium</i>	+	.	.	.	+	+	.	1	2
<i>Thymus longicaulis</i>	.	.	.	.	+	+	+	0	3
<i>Sanguisorba minor</i>	.	+	1	.	.	.	.	2	0
<i>Cynosurus echinatus</i>	.	.	+	+	.	.	.	2	0
<i>Galium verum</i>	.	+	.	+	.	.	.	2	0
<i>Crucianella graeca</i>	.	+	+	.	.	.	.	1	0
<i>Linaria dalmatica</i> ssp. <i>macedonica</i>	.	.	+	.	.	.	.	1	0
<i>Ceratistium gracile</i>	.	.	.	+	.	.	+	1	1
<i>Achillea setacea</i>	.	.	.	+	+	.	.	1	1
<i>Hieracium praetaltum</i> ssp. <i>bauhinii</i>	.	.	.	+	+	.	.	1	1
<i>Onobrychis arenaria</i>	.	.	.	+	+	1	.	0	2
<i>Rhinanthus rumelicus</i>	.	.	.	.	+	.	2	0	2
ES ELYNO-SESLERIETEA									
<i>Galium oreophilum</i>	.	+	.	.	1	+	1	1	3
<i>Pimpinella tragium</i>	.	+	.	.	+	1	.	1	2
<i>Daphne oleoides</i>	.	.	.	.	2	+	.	0	2
<i>Hieracium pannosum</i>	.	.	.	.	+	+	.	0	2
<i>Thalictrum minus</i> ssp. <i>majus</i>	.	.	.	.	+	+	.	0	2
<i>Acinos alpinus</i> ssp. <i>meridionalis</i>	.	.	.	.	+	+	.	0	2
QF QUERCO-FAGETEA									
<i>Brachypodium sylvaticum</i>	3	3	+	1	4	4	3	4	3

Tab. 5. – continued

Relevé number	1	2	3	4	5	6	7		
<i>Vicia grandiflora</i>	1	+	+	+	.	.	.	4	0
<i>Helleborus odorus</i>	.	+	.	.	+	+	+	1	3
<i>Rubus canescens</i> var. <i>canescens</i>	1	+	+	.	.	.	.	3	0
<i>Poa nemoralis</i>	2	.	+	1	.	.	.	3	0
<i>Knautia drymeia</i>	.	.	.	+	+	+	.	1	2
<i>Primula veris</i> ssp. <i>columnae</i>	.	.	.	+	+	+	+	0	3
<i>Clematis vitalba</i>	3	3	.	.	.	.	.	2	0
<i>Myosotis sylvatica</i>	.	+	.	+	.	.	+	1	1
<i>Arenaria agrimonoides</i>	.	+	.	.	.	1	+	0	2
<i>Stachys sylvatica</i>	.	+	.	.	.	+	+	0	2
OTHER SPECIES									
<i>Veronica chamaedrys</i>	+	+	.	+	.	.	+	3	1
<i>Otleya daucorloya</i>	+	+	+	.	.	.	.	3	0
<i>Poa bulbosa</i> f. <i>vivipara</i>	+	+	.	1	.	+	.	3	0
<i>Cirsium</i> sp.	.	+	.	+	+	.	.	2	1
<i>Carduus</i> sp.	.	.	.	.	1	2	3	0	3
<i>Juniperus communis</i>	.	.	.	.	+	+	+	0	3
<i>Ranunculus oreophilus</i> ssp. <i>balcanicus</i>	.	.	.	.	1	+	+	0	3
<i>Mentha spicata</i> ssp. <i>tomentosa</i>	+	.	+	.	.	.	.	2	0
<i>Polygala vulgaris</i>	.	.	+	.	+	+	.	0	2

***Vicia tenuifolia* comm. [*Geranion sanguinei*]**

(Tab. 5/5–7, Tab. 2/16)

This community was sampled on Mount Stogovo on carbonate bedrock at a relatively high altitude (above 1400 m). In the table, some alpine grassland elements of *Elyno-Seslerietea* and *Caricetea curvulae* can be found. The dominant species has too wide an ecological niche to be described as an association.

Species of low frequency: 1. *Ventenata dubia* 1, *Bromus tectorum* +, *Hordeum bulbosum* +, *Lathyrus aphaca* +, *Lathyrus latifolius* +, *Lathyrus niger* +, *Medicago sativa* ssp. *falcata* +, *Vicia pannonica* ssp. *striata* +; 2. *Salvia nemorosa* 2, *Acer campestre* juv. +, *Campanula ramosissima* +, *Coronilla varia* +, *Lathyrus hirsutus* +, *Ononis spinosa* +, *Picris hieracioides* +, *Silene vulgaris* +, *Sonchus asper* +, *Vicia sativa* ssp. *nigra* +; 3. *Aegilops neglecta* +, *Carex echinata* +, *Dasyphyllum villosum* +, *Lkactuca viminea* +, *Lolium perenne* +, *Potentilla canescens* +, *Rumex pulcher* +, *Trifolium physodes* +; 4. *Holcus lanatus* 3, *Daucus carota* 1, *Trifolium incarnatum* 1, *Vicia hirsuta* 1, *Vicia tetrasperma* 1, *Agrostis canina* +, *Aira capillaris* +, *Anagallis arvensis* +, *Anthoxanthum odoratum* +, *Bellis perennis* +, *Cichorium intybus* +, *Dianthus viscidus* +, *Festuca heterophylla* +, *Moenchia mantica* +, *Phleum phleoides* +, *Potentilla argentea* var. *tenuiloba* +, *Prunella vulgaris* +, *Quercus frainetto* juv. +, *Ranunculus neapolitanus* +, *Scutellaria columnae* +, *Veronica officinalis* +; 5. *Achillea clusiana* +, *Astragalus hypoglossis* ssp. *gremlii* +, *Dianthus minutiflorus* +, *Euphorbia myrsinites* +, *Festuca bosniaca* +, *Hippocrepis comosa* +; 6. *Euphorbia amygdaloides* +, *Festuca rubra* ssp. *rubra* +, *Rumex acetosa* +; 7. *Digitalis grandiflora* 2, *Festuca hirtovaginata* +, *Trifolium repens* 2, *Campanula spatulata* ssp. *spatulata* 1, *Luzula forsteri* 1, *Chaerophyllum temulentum* +, *Fes-*

tuca pratensis ssp. *pratensis* +, *Festuca valesiaca* +, *Leucanthemum vulgare* +, *Linaria concolor* +, *Linum catharticum* +, *Scabiosa columbaria* +, *Stachys germanica* +; 8. *Linum hologynum*.

Localities: 1. village Carina above the Prespansko Ezero, forest edge; 2. close to Prespansko Ezero near the village Carina; 3. village Oteševo near the Prespansko Ezero, forest edge; 4. village Stenje above Prespansko Ezero, 6–8 Stogovo.

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