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Contribution to the segetal communities of Slovakia

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Dedicated to the memory of Terézia Krippelová

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Abstract: An addition to the published synthesis of Slovak segetal vegetation is presented on the basis of unpublished relevés. Mostly are concerned the variability and distribution of known syntaxa. Nevertheless, several new findings are given: one local association is published as a new for science (*Misopato-Galietum parisiensis*), two associations are new for Slovakia (*Aethuso cynapium-Galeopsietum tetrahit* assigned to *Sherardion* and *Holco-Galeopsietum tetrahit* assigned to *Scleranthion annui*). Moreover, three new subassociations are published (*Euphorbio exiguae-Melandrietumnoctiflori misopatetosum*, *Misopato-Galeopsietum ladanum consolidetosum*, *Aethuso-Galeopsietum tetrahit lathyretosum tuberosi*).

Concept of two associations of the earlier synthesis is rather amended (*Euphorbio exiguae-Melandrietum noctiflori*, *Misopato-Galeopsietum ladanum*) and one association is cancelled (*Consolido regalis-Misopatetum*). Special attention is paid to the concept of *Caucalidion* and *Sherardion* (altogether 45 syntaxa published all over the Central Europe are compared in an overview).

Keywords: association, distribution, new syntaxa, segetal vegetation, Slovakia, synecology, syntaxonomy, variability.

Introduction

A synthesis of the Slovak segetal vegetation has lately been published by MOCHNACKÝ (2000); see also MOCHNACKÝ in JAROLÍMEK et al. (1997) in a Slovak version. MOCHNACKÝ (2000: 150) outlined there the history of weed research in Slovakia and mentioned the cooperation between Slovak and Czech researchers, too. Several results were published by the Czech authors separately and/or together with the Slovak colleagues (e.g. KROPÁČ 1974, KROPÁČ & HEJNÝ 1975, KROPÁČ & MOCHNACKÝ 1990). Nevertheless, summarizing relevés over the territory of former Czechoslovakia (see LOSOSOVÁ et al. 2004, KROPÁČ 2006) many unpublished relevés from Slovakia were brought to light and are made use of in this contribution. The aim of the paper is no revision of the published Slovak synthesis except for a necessary revision of one association included there and published earlier by KROPÁČ (i.e. *Consolido regalis-Misopatetum* in KROPÁČ & HEJNÝ 1975). Besides, three associations are published for the first time and some additions to others are necessary. Special attention is paid to the concept of *Caucalidion* and its position relative to the criticized *Sherardion* (LOSOSOVÁ et al. 2006), which is reflected in an overview of comparable syntaxa referred to in European countries.

Methods

Methods of the Zürich-Montpellier school were applied in the field work as so in the synthetic procedure. Well-known steps accord with methods published in MOCHNACKÝ (2000: 150-151) and/or KROPÁČ (2006: 128). Following small deviations are adopted: (1) Relevés are recorded using the Domin-Hadač 11-degree cover-abundance scale (see e.g. WESTHOFF & VAN DER MAAREL 1978 and the modification by HADAČ in KLIKA 1948 possibly HADAČ & VÁŇA 1967). The area of relevés is of a standard size ± 100 m^2 (except of the third association) and plots are selected in a stratified random design in the territory investigated. (2) Synthetic cover values are mean percentages of individual taxa in relevant syntaxa as follows: + - 0.1%, 1 – 0.5%, 2 – 2%, 3 – 4%, 4 – 10%, 5 – 20%, 6 – 30%, 7 – 40%, 8 – 60%, 9 – 80%, 10 – 95% (last three values are not used normally). Thus, the synthetic procedure is not far from that in MOCHNACKÝ (2000) where modified 9-degree scale of BARKMAN et al. (1964) with an index expressing the mean cover value was adopted (see truly criticism of Braun-Blanquet scale not distinguishing values between 5% and 25%). New syntaxa are established according to the International Code of Phytosociological Nomenclature (WEBER et al. 2000). Other syntaxa accord with MOCHNACKÝ (2000) and/or KROPÁČ (2006). Companions in the tables are ordered in the same sequence (a-h) as in KROPÁČ (2006, p. 187-189). Nomenclature of higher plants follows MARHOLD & HINDÁK (1998).

Syntaxa in *Caucalidion*

1. *Lathyro tuberosi-Adonidetum aestivalis* Kropáč et Hadač in Kropáč et al. 1971

(Tab. 1 and Tab. 10, col. 16, Fig. 1)

Seven relevés recorded in summer months 1974-1980 well correspond to the characteristics in MOCHNACKÝ (2000: 168-169, and tab. 2, col. 3) as to the species composition, synecology and synchorology. Additional findings to the cited synthesis were stated in the Žitavská and Ipeľská pahorkatina hills, Slovenský kras karst, and Východoslovenská rovina lowland (see Fig. 1). Minor differences were stated as to a higher constancy of *Adonis aestivalis* and *Fumaria vaillantii,* and likewise *Cardaria draba* among companions. This is probably due to the records from warmest parts of Slovakia. By contrast, a community with rather dense populations of *Raphanus raphanistrum*, *Centaurea cyanus*, and probably others described recently the *Lathyro-Adonidetum raphanetosum* (KROPÁČ 2006) was not revealed. This might have probably been expected in the Liptovská kotlina basin and/or at borders of the Slovenský kras karst (cf. STANO as well as TONČÍKOVÁ in MOCHNACKÝ, op. c., p.119).

2. *Euphorbio exiguae-Melandrietum noctiflori* G. Müller 1964

(Tab. 2 and Tab. 11, col. 9, Fig. 2; neotype see in Kropáč 2006: 207-208)

Identification of this association is no easy matter because it is a so-called central association of the alliance (sensu DIERSCHKE 1981) lacking its own diagnostic species.This concept has been adopted by G. MÜLLER (1964) and his followers (e.g. SCHUBERT & MAHN 1968) and lately by Kropáč (2006). Consequently, several species of the *Caucalidion* are significant for the association but usually *Silene noctiflora* and *Euphorbia exigua* reach very high constancy values. A special community described by KRIPPELOVÁ (1981: 70-74) from the Slovenský kras karst can hardly be assigned to the *Euphorbio-Melandrietum* as did she; this community rather corresponds to the *Caucalido-Conringietum* (of course without *Conringia orientalis*, cf. op. c. tab. 10). As there was this only community held for *Euphorbio-Melandrietum* in Slovakia (see MOCHNACKÝ 2000: 171) we tried to make a new synthesis so far possible. We found an appropriate amount of unpublished relevés and corresponding relevés supplied the revision of *Consolido regalis-Misopatetum* Kropáč in KROPÁČ & HEJNÝ 1975, of which five relevés of the subass. *lathyretosum tuberosi* (see op. c. tab. 2, rel. nos. 11-15 on pp. 42-45) were assigned to the *Euphorbio-Melandrietum.* Moreover, nine relevés of Passarge under *Consolida-Stachys annua*-Ges. and *Euphorbia-Stachys annua*-Ges. fairly correspond to the *Euphorbio-Melandrietum* (see PASSARGE & JURKO 1975, tab. 7, rel. nos. 1-9). In such a form the association fully corresponds to the original concept. Not far from the Passarge´s concept is the Krippelová´s *Consolida regalis-Stachys*

annua Ges. (KRIPPELOVÁ 1981, p. 75-79 and tab. 15), that she held for an impoverished community in the *Caucalidion.*

Structure and species composition: Community of 34 average number of species mainly occurs in cereals (winter wheat, spring barley, oats) and their stubbles, fully developed canopy of cereals reaches in summer months (50)70-130(150) cm in height with medium total cover 90%. The community forms, as a rule, two-layer stands of which the upper layer harbours diagnostic *Lathyrus tuberosus* and several species of higher syntaxa (*Avena fatua, Papaver rhoeas, Sinapis arvensis,* etc.) while the diagnostic species *Euphorbia exigua and Silene noctiflora* together with further important species (*Stachys annua, Consolida regalis, Misopates orontium,* and *Kickxia elatine*) occur in the lower layer. Several of them are able to regenerate in stubbles so far no skimming is in operation (see Tab. 2, header).

Distribution and ecology (Fig. 2): Community is confined to the warm and mildly warm climate at planar to colline levels (/150/ 200-350 /500/ m a.s.l.) with various relief forms (plains in W Slovakia and hilly terrain in central Slovakia). Occurrence of the association has so far been stated (from W to E Slovakia) in the following orographic units: Borská nížina and Považské podolie lowlands, Biele Karpaty hills, Trnavská and Nitrianská pahorkatina hills, Štiavnické vrchy (southern promontories), Ipeľská pahorkatina hills, Krupinská planina hills, Pliešovská kotlina basin, Lučenská kotlina basin, Revúcka vrchovina hills, Rožňavská kotlina basin. Soils are neutral to slightly acid developed on various parent material (loess deposits on flat land, pyroclasts of andesites in hilly landscape and rarely various slates of the Carpathian flysh) which corresponds to various soil texture (middle heavy clayey-loamy to sandy-loamy skeletal soils). As to the soil type mainly fluvisols, orthic luvisols, cambisols and illimerized soils /various luvisols/ on polygenetic clays and rarely chernitzas on fluvial sediments in plains occur. In hilly terrain, however, brown forest soils /cambisols/ of various subtypes on volcanic pyroclasts and/or slates are characteristic.

Potential natural vegetation mainly are Carpathian oak-hornbeam woods (*Carici pilosae-Carpinenion*) and partly Oak woods with *Quercus cerris* (*Quercetum petraeae cerris* s.l.).

Variability: In general, *Euphorbio-Melandrietum* is manifested by a very great variability. Most probably several vicariants (regional associations sensu PASSARGE 1985) may exist (see Table 11, col. 1-13 with synonyms). *Papaveri-Melandrietum noctiflori* Wasscher 1941 is probably a subatlantic race; Central-European synthetic papers (Tab.11, col. 3-7) present the association built up by *Caucalidion* species of a relatively broad ecological amplitude. By contrast, Pannonian syntheses (Tab. 11, col. 8-10, and partly col. 3) contain a higher constancy of ecologically specialized species (e.g. *Euphorbia falcata*, *Kickxia spuria*, *K. elatine*, *Anagallis foemina*, *Ajuga chamaepitys*, and especially *Misopates orontium*). Here, the occurrence of *Stachys annua* is also conspicuous. High constancy values of *Misopates orontium* in a part of the Table 2 (see rel. 16-21) resulted in the establishing of *Euphorbio-Melandrietum misopatetosum* **subass. nova hoc loco** (type rel. no. 16). Ecologically, the

subassociation is characterized by a distribution in hilly landscape with a centre in the Krupina hills and at southern borders of the Pohronský Inovec Mts. and Slovenské Rudohorie Mts. Prevailing soils are saturated brown forest soils (cambisols) on andesite pyroclasts and the *Quercetum petraeae-cerris* s.l. is probably potential natural vegetation. Summarizing, following subassociations are recognized till now: (a) typical (see Kropáč 2006: 146, identical to the neotype of association), (b) *raphanetosum* Kropáč 2006 (op. c., p. 146), (c) *misopatetosum* KROPÁČ et Mochnacký hoc loco.

3. *Misopato-Galietum parisiensis* Kropáč et Svobodová ass. nova hoc loco

Syn.: *Misopato-Galietum parisiensis* Kropáč et Svobodová 1984 nom. inval.

(Tab. 3 and Tab. 11, col. 17; holotype rel. 5 in Tab. 3)

This peculiar community revealed yet in 1980-1982 (KROPÁČ & SVOBODOVÁ 1984) was published only as a preliminary reference without relevés. The valid name with respect to the Code of phytosociological nomenclature is only published here. It is a local association confined to SE slopes of the Zobor hill situated near the village Nitrianske Hrnčiarovce (nowadays a part of the Nitra town). Climatically there are very warm habitats of light-textured sandy-loamy and fine gravelly soils (developed on quartzite-sericite shales of Lower Triassic), rather acid.

Community will grow here in strawberry plantations with an old tradition. At the beginning of past century, earlier vineyards were gradually replaced by strawberries and orchards (plums, cherries, apricots, peaches, and other fruit-trees). Only a small share of vineyards alternates with these cultures. Strawberry plantations used to be laid down as long strips (their width is 5-10 m) with duration till five or six years. Hand-hoeing used to be repeated nearly two-three times in a season. Every plantation is after winding-up renewed on the same place and/or some strip lies fallow. Consequently, such an area may readily be colonized by variety of xerothermophytes. So we have to do with first symptoms of initial stage of succession. This is clearly reflected in a special composition of this community (see below), which attracted our attention. Namely repeated occurrence of *Galium parisiense*, the species revealed on the locality by V. Řehořek in 1975 (see ŘEHOŘEK 1977, and SVOBODOVÁ et al. in ŘEHOŘEK /ed./ 2007), that will grow here in a grouping with other remarkable species, resulted in a detailed study in collaboration of both Z. Svobodová and Z. Kropáč.

Structure and species composition: Community is fully developed in summer months when fruits of strawberries are mostly harvested and cultivation ceases. This is a period of fast growing and ripening of weeds in the inter-rows (span of rows 60-70 cm) and just here were made relevés. It is a rich community (average number of 38 species) without any distinct stratification, nevertheless the presence of conspicuous plants like *Galium parisiense*, *Misopates orontium*, *Logfia arvensis*, and *Vulpia myuros* was always striking and they were considered diagnostic for the new association. We ranked the association initially (KROPÁČ & SVOBODOVÁ 1984) into *Sherardion* but *Caucalidion* is more

acceptable (see Tab. 3). Of course, the species of *Sherardion* and *Fumario-Euphorbion* (see the *Centaureetalia* in Tab. 3) are highly constant, and the same is true for the *Atriplici-Chenopodietalia* species. Moreover, among the companions an important role is played by *Onopordetalia* (B) and *Festuco-Brometea* (H) species. It may be summarized that we have to do with a thermophilous and acidophilous hybrid community, nevertheless still a segetal community (see the list of species in Tab. 3). The presence of *Vulpia myuros* (and possibly other *Thero-Airion* species) in a segetal community is a rare phenomenon. By contrast, the *Filagini-Vulpietum dertonensis* Oberdorfer 1938 (composed of *Vulpia* spp., *Filago* spp., *Aira* spp., and other *Thero-Airion* species) described from SW Germany, is a submeridionale association penetrating there on abandoned land (rather old fallows) and fully lacking of segetal species (see Oberdorfer 1938: 196-198). An impoverished *Filagini-Vulpietum* Oberd. 38 (with *Vulpia myuros* and *Filago arvensis* only) published MAGLOCKÝ (1978) from the Malé Karpaty Mts. growing on fallows of abandoned vineyards (and other anthropogenous ecotopes). In this community only several *Panico-Setarion* species with prevailing *Sedo-Scleranthetea* and *Festuco-Brometea* species are present.

Galium parisiense is a rare plant in Central Europe and taxonomically rather variable. As to the recent paper of Kaplan & Řehořek (1998) two varieties are distinguished of which the var. *leiocarpum* with glabrous fruits was present just on the Zobor locality. *Galium parisiense* is known from the Czech Republic only as an alien plant (op. c.). Sporadic occurrence among cultivated plants is known from Germany (see Koch 1970, p. 19 sec. Lindenbein probably speirochoric) and Hungary (personal communication of Dr. Erdös to Dr. Svobodová, 1986: repeated occurrence in plantations of *Majorana hortensis*).

Syntaxa in *Sherardion*

4. *Misopato-Galeopsietum ladanum* Hejný in Kropáč et Hejný 1975

(Tab. 4 and Tab. 11, col. 18, Fig. 3; type relevé no. 1 designated by the author as holotype yet in the original paper, see Preslia 47: 39, 1975)

Minor orthographic corrections are necessary (do compare the title of original paper!) and the original concept of association needs to be slightly changed. This is due to the misleading concept of *Consolido regalis-Misopatetum* (KROPÁČ in KROPÁČ & HEJNÝ 1975) revealed during the preparation of this paper. Therefore, the *Consolido regalis-Misopatetum* **is cancelled hoc loco** and its relevés are made use of partly in the *Euphorbio-Melandrietum* (see above) and partly here in the broadened concept of association (see below).

Structure and species composition: In a new concept, the community is made up of 42 average number of species; it remains nearly so rich as before. Compared to the original concept, cereals take somewhat greater part which is reflected at least in two-layered stands. In the upper layer, usually thin, the diagnostic *Galeopsis ladanum* and *Misopates orontium* (besides dominant

species of higher syntaxa) are concentrated, while *Kickxia elatine* and most of other species forming a substantial part of phytomass are concentrated in the lower, more dense layer (see Tab. 4).

Distribution and ecology: Mainly at colline levels in a span (200) 250-400 (500) m a.s.l.

with mildly warm and moderately humid (to humid) climate. Hilly terrain with moderate to steep slopes of different aspects prevails. Soils are slightly acid to acid, clayey-loamy to sandy-loamy, often stony, which depends on the parent material. Generally, brown forest soils (cambisols) of various subtypes prevail. Carpathian oak-hornbeam woods (*Carici pilosae-Carpinenion betuli*) are probably the potential natural vegetation.

Variability: Firstly, the subass. *Misopato-Galeopsietum trifolietosum arvensis* (Preslia

1975, p.34-37) should be **cancelled hoc loco.** Following two subassociations are published here: (1) *Misopato-Galeopsietum ladanum typicum* Hejný 1975 (see Tab. 4, rel. 1-8, type rel. no. 1 corresponds to the author´s type relevé and is identical with the type of association) distributed in the Ondavská vrchovina hills (see Fig. 3) on brown forest soils of the Carpathian flysh; (2) *Misopato-Galeopsietum ladanum consolidetosum* Kropáč et Mochnacký **subass. nova hoc loco** (see Tab. 4, rel. 9-17, type rel. no.9) published newly is characterized by the *Consolida regalis* and partly *Stachys annua*, and differs from the preceding subassociation by relatively warmer and drier climate. Brown forest soils (cambisols) slightly acid and saturated developed on andesite pyroclasts and illimerized soils on polygenetic clays and slates prevail here. Subassociation is stretching from the south of central Slovakia (Krupinská planina hills, Ipeľská and Lučenská kotlina basins) to the south-eastern parts of state (Revúcka vrchovina hills, Slovenský kras karst, and southern promontories of the VihorlatMts.).

5. *Aethuso cynapium-Galeopsietum tetrahit* G. Müller 1964

(Tab. 5 and Tab. 11, col. 23, Fig. 4; neotype see in Kropáč 2006: 208)

Association is published from the Slovakia as a new-one (cf. Mochnacký 2000: 172). Its real existence has until lately been unclear due to a limited number of relevés. First possible existence in Slovakia announced Kropáč (1974) under *Galeopsis tetrahit-Sinapis arvensis* community. Not far from this is also *Myosotido-Sonchetum arvensis* Passarge in Passarge et Jurko 1975 (cf. tab. 6, rel. 14-24 comparing species composition and ecology on pp. 242-243). See also an earlier contribution of CIGÁNKOVÁ (1971) from the Liptovská kotlina basin.

Structure and species composition: Association belongs to the richest ones being formed by average number of 44 species (this accords with the Czech results, KROPÁČ 2006). Cereals (mostly spring ones) prevail among the crops but also potatoes occur. Fully developed summer stands possess a high total cover of which the weed cover, as a rule, amounts more than 50%. Two-layered

stands of 60-90 cm in height (dependently on the crop and cultivar) are made up in the upper layer of diagnostic *Neslia paniculata* and *Galeopsis tetrahit* (with the subassociation of *Lathyrus tuberosus* and rarely variant of *Gladiolus imbricatus*). Among other important weeds of the upper layer are *Sinapis arvensis* and *Avena fatua*, but also *Raphanus raphanistrum.* Only the lower layer is formed of *Sherardion* species (see Tab. 5) but also of *Scleranthus annuus* (as well as other *Atriplici-Chenopodietalia* species) which is characteristic for this association.

Distribution and ecology: This community is mainly distributed at submontane level with corresponding altitudinal range (500) 550-690 (750) m a.s.l. and rather cold and moist climate, in contrast to the last mentioned association. Prevailing upland is formed by moderate to steep slopes of different aspects. Mesozoic carbonate rocks (limestones, dolomites), Carpathian flysh and partly pyroclasts of andesites are the bedrocks of soils. Rendzinas of various subtypes, pararendzinas of the Klippen belt as well as brown forest soils (cambisols) slightly acid and of sandy-loamy to clayey-loamy texture with stones are common. Occurrence of the community has so far been stated in the following orographic units (see Fig. 4): Strážovské vrchy and Kysucká vrchovina uplands (on limestones), Podbeskydská vrchovina hills (on flysh), Štiavnické vrchy and Ostrôžky hills (on pyroclasts of andesites), Lubovnianská vrchovina hills (on limestones, possibly claystones of Cretaceous klippen). Prevailing potential natural vegetation supposed on the ecotopes of association may be Submontane beech and/or fir woods with herb-rich undergrowth (*Eu-Fagenion* p.p.), possibly Carpathian oak-hornbeam woods (*Carici pilosae-Carpinenion*).

Variability: Besides a typical subassociation (identical with the type of ass., see above), the subass. *Aethuso-Galeopsietum lathyretosum tuberosi* KROPÁČ et MOCHNACKÝ **subass. nova hoc loco** (type relevé see Tab. 5, rel. no. 10) resembling the *Aethuso-Galeopsietum melandrietosum noctiflori* G. Müller 1964 (see the neotype in KROPÁČ 2006: 208) was established. Participation of several *Caucalidion* species is quite clear and for Slovak territory the constancy of *Lathyrus tuberosus* is characteristic. In addition, the occurrence of a rare plant, *Gladiolus imbricatus*, was noted (cf. also PASSARGE in PASSARGE & JURKO 1975).

Syntaxa in *Scleranthion annui*

6. *Spergulo arvensis-Scleranthetum annui* Kuhn 1937

Syntax. syn.: *Alchemillo-Sonchetum arvensis* Passarge in Passarge et Jurko 1975 p.p.

(Tab. 6, Fig. 5; neotype see in KROPÁČ 2006: 208)

Twenty-three relevés recorded during 1966-1974 mainly in mountaineous parts of Slovakia accord with the synthesis in MOCHNACKÝ (2000: 184). In addition, following statements are new: (1) Average number of species is somewhat higher than in the cited synthesis probably due to the records many

years ago when segetal vegetation was richer. (2) Nearly one third of the crops in table 6 are potatoes with average number of 42 species (potatoes harboured then strong weediness) which also explain this fact. (3) Moreover, crops were not only cereals, but also root crops, meadow clover and its mixtures with grasses (comparable to KROPÁČ 2006: 167). This phenomenon is known at higher altitudes above sea level. (4) A coherent group of *Geranium dissectum*, *Sherardia arvensis*, *Valerianella dentata* and *Neslia paniculata* crystallized and was stressed by some species of the *Centaureetalia* (see Tab. 6) which corresponds to the *Spergulo-Scleranthetum sherardietosum* (Kropáč 2006: 168). Worth mentioning are also records of Passarge synthetized in his association *Alchemillo-Sonchetum arvensis* with one grouping of relevés with *Sherardia arvensis* and *Neslia paniculata* (see in PASSARGE & JURKO 1975, tab. 6, rel. 37-44). (5) Besides, the Passarge´s association contains another group of relevés named "*Rhinanthus* Form" (see ibid., rel. 25-30) well corresponding to the variant with this species in our table (see Tab. 6). These records are made at altitudes between 850-990 m a.s.l. in central Slovakia.

In general, the synchorology is well documented in MOCHNACKÝ (2000: 184) which is supplemented by our records from the Oravské Beskydy Mts., Oravská Magura Mts., Podbeskydská vrchovina upland, Oravská kotlina basin, Pohronský Inovec Mts., Ostrôžky Mts., and Veporské vrchy Mts. (see Fig. 5).

7. *Holco-Galeopsietum tetrahit* Hilbig 1967

(Tab. 7, Fig. 6; neotype see in KROPÁČ 2006: 209)

This association published MOCHNACKÝ (2000) only as a syntaxonomic synonym, and yet earlier did so Mucina (1993). Of course, the association resemble the *Spergulo-Scleranthetum*, nevertheless it has different phytocoenotic and synecologic character. All depends on a syntaxonomist´s experience and his conception; many specialists on the segetal vegetation took over the concept of HILBIG (1967). KROPÁČ (2006) did so for the Czech Republic and presented rich references on the association. In current contribution, we decided to present this community at the level of association. There are seven relevés, recorded in fact from two geographic points only (see Fig. 6). Many further localities might probably be revealed.

For the time being, following characteristics of the association in Slovakia may be given: (1) Distribution exclusively at submontane and probably montane level (so far stated at 700 m a.s.l. and more). First records are from the Moravsko-Sliezské Beskydy Mts. and Oravské Beskydy Mts. Of course, further studies would be necessary. (2) As to the crops, rye, oats, potatoes, and various legume-grain mixtures prevail. (3) Weedy composition represents besides the supposed species (*Holcus mollis*, *Galeopsis tetrahit*) the *Scleranthion* and *Atriplici-Chenopodietalia* species with high constancy values, as well as many "meadow species" like *Achillea millefolium* but also woodland species (e.g. *Equisetum sylvaticum*). (4) Special attention should be paid to the relevés 6 and 7 (see Tab. 7) recorded on gleyed soil with waterlogged ground (see *Lythrum*

salicaria and *Lysimachia vulgaris*). Here, fir-spruce woods (*Vaccinio-Abietion*) are supposed potential natural vegetation. (5) High constancy of *Galeopsis bifida* (in contrast to the Czech synthesis) is important as one of the "geographic races" referred to by HILBIG & VOLF (1984). (6) Association harbours also some rare and/or vanishing species like *Agrostemma githago*, *Bromus secalinus*, and *Gladiolus imbricatus.*

Passarge (in Passarge & Jurko 1975) in the *Alchemillo-Sonchetum arvensis scleranthetosum* published "*Lathyrus pratensis* Form" (op. c., tab. 6, rel. 45-59) with a sporadic occurrence of *Holcus mollis* and similarly in his *Galeopsio-Sperguletum* (op. c., tab. 8, rel. 4-15) *Holcus mollis* sporadically occurs. Kornaś (1968) in the *Geranio-Silenetum gallicae veronicetosum* (see op. c., tab. 34, rel. 25-30) stated dense populations of *Holcus mollis* at 820-990 m a.s.l. in the Gorce Mts. (Polish Western Carpathians) not far from northern territory of Slovakia.

Syntaxa in *Panico-Setarion* and *Eragrostion*

8. *Stachyo annuae-Setarietum pumilae* Felföldy 1942 corr. Mucina 1993

Syntax. syn.: *Kickxio spuriae-Euphorbietum falcatae* Kropáč 1974 nom. inval., *Ajugo chamaepitys-Setarietum glaucae* Krippelová 1981

(Tab. 8, Fig. 7; lectotype Felföldy 1942: 131, tab. 20, rel. 3; see also in KROPÁČ 2006: 209)

Typical thermophilous community occurring in the warm climate of the planar to lower colline belt. In addition to the characteristics in MOCHNACKÝ (2000), some new records from altitudinal range about (108)170-270(290) m a.s.l. are added here: (1) Nine relevés made prevailingly in stubbles are in contrast to the records of MOCHNACKÝ (2000: 192) made in root crops and/or special plants. However, this agrees to the results of PINKE (2000) who revealed main occurrence in stubbles and FELFÖLDY (1942) described his community also in stubbles. (2) Comparing the distribution, this partly agrees to the Krippelová´s *Ajugo-Setarietum* as to the Slovenský kras karst and Košická kotlina basin. New findings are stated in the Ipeľská pahorkatina hills, Burda hills, Trnavská pahorkatina hills, Považský Inovec Mts. (lower parts), Podunajská rovina lowland (see Fig. 7). – Note: Valuable relevés of Zahradníková-Rošetzká (1955) mostly correspond to the *Stachyo-Setarietum* and are made in a part of the Podunajská rovina lowland in various root crops.

Structure and species composition correspond to the relevant publications of MUCINA (1993), MOCHNACKÝ (2000), PINKE (2000), and Kropáč (2006) in this respect: (a) it is a thermophilous community with basiphilous species (especially *Ajuga chamaepitys*, *Euphorbia falcata*, *Kickxia spuria*), (b) significant share of *Caucalidion* species, possibly *Fumario-Euphorbion* species, and the presence of *Onopordetalia* and *Festuco-Brometea* species should be noted, too.

As to the higher rank, *Panico-Setarion* is usually referred to, which may be questionable because of a great share of the *Caucalidion*, possibly *Fumario-*

Euphorbion species. Many transgressive *Caucalidion* species into the *Fumario-Euphorbion* were observed due to the crop rotation (cf. KROPÁČ 2006: 147). This is why Kropáč (op. c.) assigned the *Stachyo-Setarietum* to *Fumario-Euphorbion.* Worth mentioning is also a discussion of KRIPPELOVÁ (1981, p. 75, and the comparison of tables 9 and 13 there).

9. *Hibisco-Eragrostietum* Soó et Timár in Timár 1957

(Tab. 9, Fig. 8)

Only nine relevés recorded occasionally in 1963-1989 may complete the survey in MOCHNACKÝ (2000: 196-197). These records agree to the cited synthesis and only several new findings may be added: (1) In plantations of tobacco, the parasitic weed *Phelipanche ramosa* was recorded. (2) Main centre of distribution is stated in the southern part of Podunajská rovina lowland (at the lowest altitudes 108-120 m a.s.l.), but also in the lower colline belt of Ipeľská pahorkatina hills (at altitudes 135-190 m a.s.l.). Anycase, a flat relief prevails, possibly south-facing moderate slopes in gently undulating landscape occur. (3) As to the soils, fluvisols on carbonate sediments and/or chernitzas on alluvial sediments, as well as leached chernozems on loesses are suitable for the community. (4) In addition to the special crops like red pepper, sweet melon, soybean and tobacco, the community was observed also in maize, of course with appropriate stratification: tall plants like *Amaranthus retroflexus*, *A. powellii*, *Echinochloa crus-galli*, *Chenopodium album*, etc. are harboured in the uppermost layer, while the diagnostic species (*Hibiscus trionum*, *Portulaca oleracea*, *Amaranthus albus*, *Digitaria sanguinalis*, *Heliotropium europaeum*) are confined to lower layers. (5) In this community were observed, from place to place, the invasive aliens (cf. JEHLÍK 1998) that may become potential weeds (e.g. *Amaranthus blitoides*, *Iva xanthiifolia*, *Panicum miliaceum* subsp. *ruderale*, *Sorghum halepense* – cf. Tab 9).

Generel considerations about the concept of alliances *Caucalidion* and *Sherardion*

(written by Z. Kropáč)

Many segetal associations were established throughout the Central European territory starting from the thirty years of last century. This is reflected in an overview of selected syntaxa ranked in the above-mentioned alliances (see Tables 10 and 11).

Table 10 contains twenty selected syntaxa of the ***Caucalidion***. Deliberately made selection contains (a) syntaxa distributed over the Central Europe from the west to the east (i.e. the territories of south-western, central, and eastern Germany, Poland, Czech Republic, Slovakia, Austria, and northern Hungary), (b) selected species of relevant publications arranged starting with the submediterranean-subatlantic taxa to the subcontinental ones (so far possible). Apparently, all published syntaxa cannot be taken into account, especially those

further divided into the smaller units like races, forms („Ausbildungsform"), etc. In this case, an intermediate unit (regarding the altitudinal belt and/or territorial distribution) was chosen. Higher syntaxa (and list of species) are selected regarding their diagnostic value (*Stellarietea* species are not included). The aim of this overview is to show an amount of allied syntaxa gathered, and point out their ecology and territorial significance.

1. *Caucalido latifoliae-Adonidetum flammeae* Tüxen ex Oberdorfer 1957 is the most thermophilous community with its distribution centre in the Submediterranean; this is truly reflected in Oberdorfer (1983: 24-25) and in the table yet earlier (Oberdorfer 1957: 30-31) where he validated the association with diagnostic *Turgenia /Caucalis/ latifolia*, *Adonis flammea*, and *Asperula arvensis* (cf. the original name form in Tüxen 1950: 136). This association reached earlier into southern parts of Central Europe but nowadays is missing here (probably extinct). Typical stands may be found in the submontaneous belt of central Italy (Kropáč 1982, relevés inedit.). Association frequently contains *Caucalis* platycarpos* and *Adonis aestivalis* (see Tab. 10), and thus it used to be implicitly interpreted *Caucalido-Adonidetum* Tüxen 1950 without specific epithets (not in accordance with the Code).

Next two syntaxa are linked up with the last-mentioned association.

2. *Anthemido austriacae-Camelinetum microcarpae* Holzner 1973 and 3. *Camelino microcarpae-Anthemidetum austriacae* Holzner nom. invers. Mucina 1993 *caucalidetosum* Pinke 2000 have their distribution in the Austrian and Hungarian Pannonicum. High constancy values possess *Anthemis austriaca*, *Caucalis* platycarpos* and *Galium tricornutum*; also *Bupleurum rotundifolium*, *Euphorbia falcata*, and *Bifora radians* reach their optimum here, while some submediterranean-subatlantic species (like *Legousia speculum-veneris* and *Alopecurus myosuroides*) reach only lower constancy. *Camelina microcarpa* plays a role of connecting link with evidently subcontinental tendency.

4. *Caucalido daucoidis-Conringietum orientalis* Klika 1936 has recently been documented from the Czech Republic by Kropáč (2006; see syntaxonomic comments on p. 134). This is also a thermophilous community differing from the last-mentioned ones by the absence of *Anthemis austriaca* and, in contrast, by the high constancy of *Conringia orientalis.* Some differencies are in a lower constancy of *Camelina microcarpa* and, by contrast, in a higher constancy of *Adonis aestivalis.* Here, *Legousia speculum-veneris* and *Alopecurus myosuroides* are lacking fully.

Next associations (5 and 6) have in common some features of subatlantic character.

5. *Apero-Lathyretum aphacae* Tüxen et Rochow ex Rochow 1951 nom. invers. Oberdorfer 1983 is probably a local association well documented from SW Germany by Oberdorfer. It is situated on warm ecotopes and striking is a high constancy of *Lathyrus aphaca* (together with *Legousia speculum-veneris*) in combination with a relative highly constant *Apera spica-venti* (and some *Atriplici-*

Chenopodietalia species). It should be noted a relative low constancy of several *Caucalidion* species and, in contrast, striking occurrence of the *Kickxia* spp. (see comments in Oberdorfer 1983, p. 29) which shows an affinity to the next association. This association is presented here regarding a frequent occurrence of *Lathyrus aphaca* in warm parts of the Bílé Karpaty Mts. (cf. syntaxon no. 11). In addition, worth noting is the *Sileno noctiflorae-Lathyretum aphacae* Kuhn 1937 from SW Germany (selected as holotype of the *Caucalidion* by ROCHOW 1951: 26; see also KROPÁČ 2006: 132).

6. *Linarietum spuriae* Kruseman et Vlieger 1939 described originally from the Netherlands is presented here in a larger synthesis by Oberdorfer (1983). According to him, it is a submediterranean-subatlantic community not growing in the Central Europe but preferably in the NW Europe. Nevertheless, several elements of this association reach to the east (cf. syntaxa nos. 11 and 15 in Tab. 10) and take there part in various lower syntaxa (see below Tab. 11). Compared with the preceding association, there is a relative low constancy of several *Caucalidion* species in common and, in contrast, many *Atriplici-Chenopodietalia* included.

7. *Caucalido daucoidis-Scandicetum pectinis-veneris* Tüxen 1937 is presented here for the sake of comparing the original concept of Tüxen (1937) with some false interpretations by his followers. Several of them supposed this association to be the most thermophilous and calciphilous, but later on, Tüxen (1950: 138-139) showed that it is lacking of proper characteristic species and its synecology is between *Caucalidion* and *Agrostidion spicae-venti* (i.e. *Scleranthion annui* nowadays). Nevertheless, it is a calciphilous association established on its „locus classicus" in the NW Germany where relatively mild climate is compensated by the bedrock.

In this respect, the next two syntaxa (nos. 8 and 9) well correspond to the original Tüxen´s conception.

8. *Caucalido-Scandicetum* (Tx. 1950) R. Schubert et Köhler 1964 (as to the full name of syntaxon selected among 340 relevés see the Tab. 10). Selected typical subassociation (39 rel.) is completed by the subas. v. *Aphanes arvensis* with 9 rel. (see in the parentheses). This is a specific association confined to a calcareous territory of the Thuringia (Thüringen, Germany) with its distribution at higher colline level. Besides highly constant *Scandix pecten-veneris*, this association is manifested by *Adonis aestivalis* var. *citrinus* (a vanishing plant) with medium constancy (not included in Tab. 10). Remark: Small amendation by the authors is due to a modified syntaxonomic conception (a part of the *Fumario-Euphorbion* included).

9. *Caucalido daucoidis-Scandicetum pectinis-veneris* Tüxen 1937 revealed by Kornaś (1950) in the southern Poland on marls belong to a very valuable finding. Community of this composition contains also highly constant *Camelina microcarpa* and several *Sherardion* species (*Valerianella dentata*, *Neslia paniculata*, and *Galeopsis ladanum* - see Tab. 10, col. 9, and as to the *Sherardion* do consult Tab. 11, here included in the *Centaureetalia*); among

others also *Misopates orontium* and *Festuco-Brometea* spp. have their diagnostic value for the adjacent Slovak territory. In general, Kornaś´s community is manifested by a high average number of species.

10. *Caucalido-Adonidetum* Tüxen 1950 (without specific epithets) is referred to by Nezadal (1975) in its original concept which is obvious from the text on pp. 118-122. It is a very important synthesis from NE Bavaria (Bayern, Germany) which reflects changes of this community over a long-term period. Worth mentioning is among others highly constant *Galeopsis ladanum* (do compare with the last-mentioned finding !).

Next syntaxa are manifested by a high constancy of *Adonis aestivalis* (except of the curious syntaxon no. 15) in combination with different thermophilous species of *Caucalidion* (see Tab. 10). Two syntaxa seem to resemble one another, mainly the *Lathyro tuberosi-Adonidetum* and *Galio-Adonidetum*; the last-mentioned is lacking of *Caucalis* platycarpos* and *Anthemis austriaca* as well as some *Sisymbrietalia* and *Onopordetalia* spp. Apart from this, the *Galio-Adonidetum* is mainly confined to calcareous soils (its position is near to *Caucalido-Scandicetum*) while the *Lathyro-Adonidetum* prefers various base-rich soils locally maybe slightly acid.

***Lathyro tuberosi-Adonidetum aestivalis* Kropáč et Hadač in Kropáč et al. 1971** according to the last Czech synthesis (KROPÁČ 2006) in the Table 10 (col.no. 12) holds an intermediate position among contributions to this association. Most different from others is the publication by Otýpková (Tab. 10, col. 11) that represents a Pannonian race enriched by *Lathyrus aphaca*, and to some extent *Conringia orientalis*, *Kickxia spuria*, and *Euphorbia falcata.* Another synthesis from southern Moravia applied statistical methods and confirmed, in general, the other results (see Tab. 10, col. 14). Two contributions from Slovakia (Tab. 10, col.16 and 17) differ one another which was discussed yet above (see Tab. 1). Synthesis over a large territory of Slovakia shows the plasticity of association in various climatic conditions.

Last three syntaxa (Tab. 10, col.18, 19 and 20) labelled *Caucalido-Scandicetum* Tüxen 1937 can hardly be assigned to this association. However, what should have been found among the authorities in phytosociology? Rare occurrence of *Adonis flammea* in this part of Poland is a valuable finding. Taking this into account, one possibility would be to declare this a very impoverished *Caucalido latifoliae-Adonidetum flammeae*. But surely these communities might be assigned to the *Lathyro tuberosi-Adonidetum aestivalis* with highly constant *Stachys annua* (like in the Pannonicum).

Syntaxon no.15 labelled *Euphorbio exiguae-Melandrietum noctiflori* (details to this assoc. see Tab. 11) seems here somewhat inadequate but we placed it here owing to possible comparing with the syntaxa no. 4 and/or 11. Very striking is the highest constancy of *Stachys annua*, as well as high constancy of *Setaria viridis*; this community was probably formed due to the crop rotation (overlapping of many *Fumario-Euphorbion* species, do compare with the Table 8 !).

Table 11 is linked up with the Tab. 10 in the first part (Tab. 11, col. 1 to 17 incl.) containing syntaxa usually ranked in the ***Caucalidion***. Leading part is played here by the association ***Euphorbio exiguae-Melandrietum noctiflori*** held by many experts for the so-called central association of the alliance sensu Dierschke (e.g. Oberdorfer 1983: 30). However, it is interpreted in three various versions: (a) *Papaveri-Melandrietum noctiflori* prov. Wasscher 1941, (b) *Lathyro tuberosi-Silenetum noctiflorae* Oberdorfer 1957 (recte *Lathyro tuberosi-Melandrietum noctiflori* prov. Oberdorfer 1957, see op. c., p.32 !), (c) *Euphorbio exiguae-Melandrietum noctiflori* G. Müller 1964. For the sake of clarity, following explanations are necessary: WASSCHER (1941) as well as OBERDORFER (1957) published their associations with provisional name and thus they were not valid (Code, art. 3b). *Papaveri-Melandrietum noctiflori* is a rather different community (see Tab. 11, col. 1 and 2) containing only two or three *Caucalidion* species but surprisingly *Scandix pecten-veneris* and *Alopecurus myosuroides* in high constancy and several *Sherardion* species, too. It is admirable that after more than fifty years the association was found nearly in the same form as before. This specific association should be validated by Holland scientists according to the Code (art. 7). OBERDORFER (1983) resigned for his *Lathyro tuberosi-Melandrietum noctiflori* 1957 and turned back to the Wasscher´s nomenclature (apparently due to the presumed priority). He did so evidently to his cost because the last synthesis (op.c., p. 30-34) corresponds to his original concept (see Tab. 11, col. 5). HOLZNER (1973) and NEZADAL (1975) published their communities under the *Lathyro tuberosi-Silenetum noctiflorae* Oberdorfer 1957 just in accordance with Oberdorfer´s concept (see Tab. 11, col. 3 and 4). It is only a pity that nobody of them validated Oberdorfer´s association because this might have been declared the legitime name. In the meantime, G. Müller (1963/1964) published the *Euphorbio exiguae-Melandrietum noctiflori* with the synthetic table (op.c., table on pp. 142-145) which was then fully acceptable for valid publication (i.e. before 1.1.1979, see the Code, art. 7). Nowadays, this is also confirmed by the type relevé (KROPÁČ 2006: 207-208) and association in this form mostly corresponds to its various forms in Central Europe (see Tab. 11, col. 6 and 7).

Every association studied in details has its own geographical forms: races and/or other smaller deviations like „Ausbildungsform“ used in Schubert et Mahn (1968), possibly lowland forms and montane forms used in Oberdorfer (1983), etc. However, serious differences may arise as a result of large distribution so far we have not to do with another association. Most probably several regional associations and/or regional area forms may be distinguished. This problem was solved by Passarge (1985) using as a model association the *Papaveretum argemones*: he put forward the status of regional associations (vicariants) ranked between the association and subassociation (he outlined the nomenclature, too). This proposal was not followed, however. In the Table 11 are distinguished different syntaxa no. 3, 8, and 9 manifested by a higher constancy of *Euphorbia falcata*, *Kickxia spuria*, and *K. elatine.* These syntaxa may be conceived the *Euphorbio exiguae-Melandrietum noctiflori* ´Pannonian vicariant´ (in accordance with the Code, p. 11 as one possibility).

Choice of the syntaxa nos. 11, 12, 13, and 14 (Tab. 11) from the territory of eastern Germany and a large area of Poland has some features in common, namely a relative high constancy of the central *Caucalidion* species (*Silene noctiflora*, *Euphorbia exigua*, *Lathyrus tuberosus*, *Consolida regalis*) and the absence and/or low constancy of other *Caucalidion* and *Sherardion* species. Syntaxon no. 11 labelled *Vicietum tetraspermae* in its lower rank fits well the *Euphorbio-Melandrietum.*[x)]

[x)] Syntaxonomic remark: *Vicietum tetraspermae* sensu Kornaś 1950 non Kruseman et Vlieger 1939 belongs to the *Scleranthion annui* – see the explanation in Kropáč (2006: 161)

Camelino microcarpae-Consolidetum regalis (no. 14) may be held for a fairly good syntaxonomic synonym of the *Euphorbio-Melandrietum noctiflori* accentuated by highly constatnt *Camelina microcarpa* (and some other thermophilous species). Do compare the occurrence of *Camelina microcarpa* in several syntaxa from Poland in the Table 10 (nos. 9, 18, 19, and 20).

Rather different is the *Consolido-Anthemidetum austriacae* (Tab. 11, nos. 15 and 16) manifested by *Anthemis austriaca* and especially *A. ruthenica.* Differences between the Czech and Slovak syntheses are of regional character and for the Slovak territory the race with *Vicia pannonica* is significant. Association in its typical appearence for the Czech Republic (no. 15) holds the position near to the *Euphorbio-Melandrietum noctiflori. Anthemis austriaca* as a thermophilous species with distribution mainly in the Pannonicum (cf. Tab 10, col. 3) takes part in specific communities including the *Lathyro-Adonidetum* (cf. Tab. 10, col. 12, 14, and 16). It prefers loamy-sandy and gravelly soils which is evident in the Czech part of its area (NW border of the area). This is true also with the specific association no. 17 (Tab. 11) but need not accord with the Austrian Pannonicum (cf. HOLZNER 1973).

Next syntaxa (Tab. 11, col. 18 to 25) are deliberately ranked into the ***Sherardion***, real existence of which, however, is questionable as to the critical contribution (Lososová et al. 2006). Firstly, using the classic methods, I shall try to show what the *Sherardion* is held for. In the synoptic table 11 are grouped in the second part (col. 18 to 25) units markedly different from units in the first part (col. 1 to 17). Here, two facts are evident: (a) decline of the *Caucalidion* constancy and simultaneously an increase of the *Sherardion* constancy, (b) conspicuous growing values of the *Atriplici-Chenopodietalia* constancy (its species are good differentials towards the *Caucalidion*). There is no doubt that we have to do with a real existence of transitional grouping between the *Caucalidion* and *Scleranthion*, which has been stated yet in the Czech synthesis (Kropáč 2006) but more distinctly is pronounced now in Slovakia; this grouping is slightly thermophilous and slightly acidophilous. Should the associations nos. 18 to 25 (in Tab. 11) be ranked at the level of *Caucalidion* or *Scleranthion*? With respect to the above-mentioned critique, I think that the rank of suballiance may probably be reasonable. Similar views on these facts were formerly put forward by SCHUBERT & MAHN (1968, p. 143) and PASSARGE (1964, pp. 115-117). For the

present, however, I put off any syntaxonomic operations. Probably some other may evaluate the reality.

Let us show various views on the facts in question. ELLENBERG (1950: 109) presents among 25 groups of similar ecological status the *Sherardia arvensis* group („Ackerröten-Gruppe“) containing among others *Neslia paniculata*, *Aethusa cynapium*, *Lithospermum arvense*, *Avena fatua*, and *Medicago lupulina* with their position at the margin of calcicole groups but not yet too acidophilous. OBERDORFER (1957: 32-33) holds some associations in the *Caucalidion* for transitional communities with an inclination to slightly acid soils. Related opinion of Schubert & Mahn (1968: 143) is based on the ecologic-sociological groups (Hilbig et al. 1962). One subgroup is named *Sherardia arvensis* (a part of the *Euphorbia exigua* group containing *Avena fatua*, *Aethusa cynapium*, *Medicago lupulina*, *Valerianella dentata*, *Ranunculus arvensis*, *Lithospermum arvense*, and *Odontites rubra*). PASSARGE (1964: 115-117) presents two association groups („Ass.-Gr. *Melandrietum noctiflori*“ and „Ass.-Gr. *Ranunculetum arvensis*“) evidently placed at the margin of thermophilous communities which corresponds to the climate conditions of NE Germany (see also Tab. 11, col. 14). In a similar way was observed the impoverishment of *Caucalidion* communities step by step with higher elevations above sea level. Among older contributions, worth noting are those from the Austrian Tirols (see e.g. KNAPP G. & KNAPP R. 1953, KIELHAUSER 1956) made up at montane levels about 1000 m a.s.l. and more. Here can be found an impoverished *Caucalidion* with many species labelled in our system as *Sherardion* (e.g. *Sherardia arvensis*, *Valerianella dentata*, *Neslia paniculat*a, *Veronica agrestis*, *Galeopsis ladanum*, etc.). At these levels were described also *Galeopsietum ladani* Ries 1991, *Soncho-Veronicetum agrestis* Br.-Bl. 1970, and *Adonido-Delphinietum consolidae* Br.-Bl. 1970 – probably extinct (sec. MUCINA 1993: 117-118). All these contributions are based on reliable floristic and ecologic data sets.

Above-mentioned authors (LOSOSOVÁ et al. 2006) rightfully criticize the subjective approach of traditional phytosociology resulting in an oversampling of presumed community. Applying the formalized approach and devised methods of classification, numerous publications appeared in those poorly delimited syntaxa were revealed (e.g. CHYTRÝ & TICHÝ 2003, KNOLLOVÁ et al. 2005, DOUDA 2008, etc.). No doubt, this is a new progress in vegetation science that should be respected. I only cannot agree to some steps in the above-mentioned critics. Above all, the diagnostic species of *Sherardion* cited there (Lososová et al., op. c., p.268) do not accord with up-to day list of species (KROPÁČ 2006, p.154). There are quoted only several of them according to an older paper (Kropáč 1978) but the list of species was later on markedly amended. In the current paper are included eight of the relevant species (Tab. 11, see species under *Sherardion*) but non of them can be found in any of the seven clusters (Lososová et al., op. c., tab. 2 on pp. 264-267) except of *Neslia paniculata* (and the omitted *Kickxia elatine* and *Misopates orontium*). It can hardly be understood that no one could be catched in any of the clusters. I think that the ecologic significance of these species is evident but they are for the reader of the critics lost.

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Tab. 1. *Lathyro tuberosi-Adonidetum aestivalis* Kropáč et Hadač in Kropáč et al. 1971.

Relevé no.	1	2	3	4	5	6	7	C	CV	S
Altitude (m)	195	105	180	150	125	270	470			
Aspect	SW	- E	W	-	SE	SE				
Slope (degrees)	10	0	3	15	0	7	7			
Crop	Ww	Ww	Ww	Rpw	Bs	LGs	LGs			
Height of stand (cm)	110	120	110	150	70	110	120			
Total cover (%)	90	95	90	100	90	100	85			
Crop cover (%)	70	75	70	75	70	60	50			
Weed cover (%)	45	55	55	50	45	70	60			
Number of species	33	34	38	29	33	40	35			
D Ass.										
Adonis aestivalis	4	1	3	1	.	1	1	86	2.3	(1-4)
Caucalidion										
Lathyrus tuberosus	4	5	3	3	4	4	6	100	12.6	(3-6)
Consolida regalis*	4	4	5	4	1	3	1	100	7.9	(1-5)
Fumaria vaillantii	.	2	4	.	2	1	1	71	2.1	(1-4)
Silene noctiflora	.	.	2	.	3	3	1	57	1.5	(1-3)
Stachys annua	.	.	4	.	4	4	.	43	4.3	(4)
Anagallis foemina	2	.	3	.	.	4	.	43	2.3	(2-4)
Euphorbia exigua	1	.	1	.	.	3	.	43	0.7	(1-3)
Anthemis austriaca	.	.	.	.	4	2	.	29	1.7	(2-4)
Galium tricornutum	.	.	.	.	1	.	3	29	0.6	(1-3)
*Euphorbia*platyphyllos*	.	1	1	.	.	.	.	29	0.1	(1)
Camelina microcarpa	.	.	1	+	.	.	.	29	0.1	(+-1)
Erysimum repandum	+	.	.	+	.	.	.	29	0.1	(+)
Centaureetalia										
Avena fatua	3	4	2	3	5	7	.	86	11.4	(2-7)
Sinapis arvensis	2	3	2	.	2	5	5	86	7.1	(2-5)
Papaver rhoeas	.	.	5	3	3	4	.	57	5.4	(3-5)
Veronica polita	.	.	4	.	3	2	4	57	3.7	(2-4)
Ranunculus arvensis	1	4	.	.	.	+	3	57	2.1	(+-4)
Euphorbia helioscopia	.	.	1	.	2	1	4	57	1.9	(1-4)
Galium spurium	.	2	.	3	2	3	.	57	1.7	(2-3)
Medicago lupulina	.	.	.	.	2	1	2	43	0.6	(1-2)
Aethusa agrestis*	.	.	3	.	.	.	2	29	0.9	(2-3)
Lithospermum arvense	2	.	.	.	.	2	.	29	0.6	(2)
Polygonum rurivagum	.	.	2	.	.	.	1	29	0.4	(1-2)

Tab. 1. – cont.

Atriplici-Chenopodietalia										
Setaria pumila	2	+	2	.	.	.	1	57	0.7	(+-2)
Raphanus raphanistrum	.	.	.	.	1	3	.	29	0.6	(1-3)
Centaurea cyanus	.	.	.	1	.	2	.	29	0.4	(1-2)
Sisymbrietalia										
Descurainia sophia	.	.	2	1	1	.	.	43	0.4	(1-2)
Lactuca serriola	.	.	+	1	.	.	.	29	0.1	(+-1)
Stellarietea										
Tripleurospermum perforatum	2	5	3	6	3	3	2	100	9.4	(2-6)
Anagallis arvensis	3	2	1	1	2	3	1	100	1.9	(1-3)
Veronica persica	.	3	4	2	2	3	4	86	4.6	(2-4)
Viola arvensis	3	2	4	3	.	3	1	86	3.5	(1-4)
Stellaria media	.	2	2	4	3	2	3	86	3.4	(2-4)
Fallopia convolvulus	3	3	3	4	.	4	.	71	4.6	(3-4)
Thlaspi arvense	+	3	.	3	2	.	4	71	2.9	(+-4)
Capsella bursa-pastoris	.	.	3	3	2	1	.	57	1.5	(1-3)
Atriplex patula	3	2	.	.	.	2	1	57	1.2	(1-3)
Lamium amplexicaule	.	3	.	.	.	1	2	43	0.9	(1-3)
Erodium cicutarium	.	.	1	.	.	.	4	29	1.5	(1-4)
Arenaria serpyllifolia	.	.	3	.	.	2	.	29	0.9	(2-3)
Polygonum aviculare	2	3	.	.	.	.	.	29	0.9	(2-3)
Sonchus asper	.	.	.	.	2	3	.	29	0.9	(2-3)
Chenopodium album	.	.	.	2	2	.	.	29	0.6	(2)
Myosotis arvensis	.	1	.	2	.	.	.	29	0.4	(1-2)
Vicia angustifolia	.	.	.	.	2	.	1	29	0.4	(1-2)
Companions										
A *Convolvulus arvensis*	5	3	4	4	.	4	5	86	10.6	(3-5)
Cirsium arvense	3	4	.	.	5	4	4	71	7.7	(3-5)
Elytrigia repens	.	4	3	2	2	.	3	71	3.1	(2-4)
B *Cardaria draba*	3	.	3	+	2	4	.	71	2.9	(+-4)
Linaria vulgaris	.	.	1	.	.	2	.	29	0.4	(1-2)
C *Galium aparine*	.	3	.	5	.	.	3	43	4.0	(3-5)
D *Polygonum arenastrum*	1	1	.	.	.	.	1	43	0.2	(1)
E *Rumex crispus*	1	.	.	.	.	.	1	29	0.1	(1)

In one relevé only: *Agrostemma githago* (6:1), *Ajuga chamaepitys* (3:1), *Amaranthus powellii* (5:1), *Arrhenatherum elatius* (2:1), *Cannabis sativa* (3:2), *Carduus acanthoides* (4:+), *Cerinthe minor* (3:2), *Chenopodium hybridum* (5:1), *Cichorium intybus* (1:1), *Conium maculatum* (4:+), *Consolida orientalis* (5:4), *Daucus carota* (1:2), *Echinochloa crus-galli* (1:1), *Equisetum arvense* (2:4), *Euphorbia falcata* (6:+), *E. tommasiniana* (1:2), *Falcaria vulgaris* (1:3), *Galeopsis bifida* (2:4), *Galinsoga parviflora* (5:1), *Geranium pusillum* (4:2), *Hesiodia montana* (3:1), *Kickxia elatine* (1:2), *K. spuria* (1:1), *Lamium purpureum* (2:2), *Melampyrum barbatum* (6:1), *Microrrhinum minus* (6:1), *Neslia paniculata* (7: 4), *Nigella arvensis* (3:3), *Persicaria maculosa* (2: 3), *P.* pallida* (1:4), *Rorippa palustris* (2:+), *Scleranthus annuus* (7:3), *Sherardia arvensis* (7:4), *Silene dichotoma* (6:3), *Thymelaea passerina* (1: +), *Vicia glabrescens* (4:1), *V. hirsuta* (7:1), *V. tenuifolia* (1:1), *Xanthoxalis stricta* (2:3).

Localities: 1. Santovka, ca. 3 km NW, on the left side of the road to Levice town, at the crossroad to the village Bory (7878a), 21.7.1973; 2. Zemplínska Široká, ca. 2 km NNW, on the left side of the road to Michalovce town (7297d), 29.6.1974; 3. Turňa nad Bodvou, ca. 1.5 km EEN of the village (7391c), 30.6.1974; 4. Malinovec, 0.2 km SSE of the village, on the left side of the road to Demandice (7878d), 28.6.1980; 5. Pastovce (ca. 20 km N of the Štúrovo town), at the SW margin of the village (8078a), 28.6.1980; 6. Dolne Štitáre (NE of Nitra town), ca. 1.5 km NE of the village, at the footslope of the Žibrica hill (7675a), 27.6.1974; 7. Silická Brezová (Slovakian Karst, EES of Plešivec town), ca. 1 km NE of the village (7488d), 28.6.1974.

Remarks:

(1) Localities contain in the parentheses some data for quick orientation (if necessary) and then are coded by small quadrants used in the Central-European mapping system; distance in km is given from the centre of settlement, if not stated otherwise.

(2) Plot area for relevés is of standard size ± 100 m^2 (deviation ± 10%) and is not included in the header (except of the Table 3 - see there).

(3) Following symbols are used for the crops in the header: Bs - spring barley, C - meadow clover (*Trifolium pratense*), (c) - undercrop of meadow clover, e.g. Bs(c), Ff - fallow field (lea), L - lucerne (alfalfa), i.e. *Medicago sativa*, LGs - spring legume-grain mixture, M - maize (grain or silage), O - oats, P - potatoes, R - rye (only winter r.), RP - red pepper (*Capsicum annuum*), Rpw - winter rape (*Brassica napus* var. *napus* f. *biennis*), So - soybean (*Glycine max*), s - stubble field, e.g. s(Bs), i.e. after harvested spring barley, etc., C(s) - meadow clover, stubble stand after harvested cover crop (not defined), L(s) - like with meadow clover, etc., T - tobacco (*Nicotiana tabacum*), Ws - spring wheat, Ww - winter wheat.

(4) Subspecific taxa are written with asterisk (*).

(5) Companions are arranged as modified groups marked with capital letters: A - *Convolvulo-Agropyrion* p.p.min., B - *Onopordetalia*, C - *Lamio-Chenopodietalia boni-henrici*, D - *Polygonion avicularis*, E - *Agropyro-Rumicion* s.l., F - *Iso to-Nanojuncetea* (incl. *Bidention* p.p.), G - *Molinio-Arrhenatheretea* (incl. *Nardo-Callunetea* p.p.), H - *Festuco-Brometea* (incl. *Sedo-Scleranthetea* p.p.), I - others (syntaxonomy follows Moravec et al. 1995).

(6) Capital letters at the right side of the header: C - constancy percentage, CV - cover value, S - span.

Remarks 1 to 6 are relevant to all the tables.

Tab. 2. *Euphorbio exiguae-Melandrietum noctiflori* G. Müller 1964.

Relevé no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	C_1	CV_1	16	17	18	19	20	21	C_2	CV_2	C	CV	S
Altitude (m)	290	185	200	240	240	240	370	460	510	260	240	150	150	190	190	195	280	380	365	330	350							
Aspect	SW	-	.	.	.	.	ESE	NE	NE	W	.	.	.	.	.	SW	SE	S	-	S	SE							
Slope (degrees)	10	0	.	.	.	.	20	5	10	5	.	.	.	.	.	15	5	15	0	15	10							
Crop	W	s	W	W	W	Bs	s	Bs	W	s	W	W	W	O	Bs	Bs	s	Ww	Bs	O	Bs(c)							
	w	(Ww)	w	w	w		(ww)	(c)	w	(Ww)	w	w	w				(R)											
Height of stand (cm)	80	10	130	100	110	70	10	65	100	10	150	130	130	120	60	50	10	80	50	100	45							
Total cover (%)	100	40	.	.	.	.	45	95	90	60	.	.	.	.	.	100	65	90	90	90	100							
Crop cover (%)	75	-	63	63	63	63	-	60	40	-	88	63	63	63	63	50	-	50	60	70	70							
Weed cover (%)	50	40	.	.	.	.	45	60	70	60	.	.	.	.	.	70	65	60	45	45	60							
Number of species	30	30	19	39	38	18	38	36	43	37	35	28	30	23	32	45	34	35	32	34	53							
D Ass.																												
Euphorbia exigua	3	3	.	1	1	.	.	2	1	2	.	.	.	.	+	53	1.3	2	4	2	2	3	4	100	5.0	67	2.3	(+-4)
Silene noctiflora	1	.	.	+	.	1	1	.	.	.	1	+	+	.	+	53	0.6	1	.	.	.	.	4	33	1.8	48	0.9	(+-4)
Diff. subass.																												
Misopates orontium	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	3	1	4	4	+	100	4.2	29	1.2	(+-4)
Caucalidion																												
Lathyrus tuberosus	2	2	2	+	+	.	2	.	2	4	.	+	1	1	.	73	2.7	5	.	2	3	2	5	83	8.0	76	4.2	(+-5)
Stachys annua	2	.	+	.	+	+	.	4	4	.	1	+	1	+	1	73	2.2	.	5	1	.	2	.	50	3.8	67	2.7	(+-5)
Consolida regalis*	1	5	2	.	.	.	.	.	3	4	+	2	2	.	.	53	5.3	4	6	.	.	1	1	67	6.8	57	5.8	(+-6)
Kickxia elatine	.	3	.	.	1	.	.	.	.	3	.	+	.	.	+	33	0.8	2	4	.	1	.	4	67	3.8	43	1.6	(+-4)
Kickxia spuria	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	7	0.1	1	.	.	.	.	1	33	0.2	14	0.1	(1-2)
Euphorbia platyphyllos*	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	13	0.1	.	.	.	.	.		.	.	10	0.1	(1)
Euphorbia falcata	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	13	0.1	.	.	.	.	.	.	.	.	10	0.1	(+)
Centaureetalia																												
Avena fatua	5	.	.	1	+	.	.	5	3	1	.	.	+	1	.	53	3.4	6	.	1	2	4	6	83	12.1	62	5.9	(+-6)
Medicago lupulina	.	3	.	1	+	.	1	.	.	1	1	1	+	+	.	60	1.0	.	1	.	.	1	4	50	1.8	57	1.3	(+-4)
Papaver rhoeas	1	.	+	.	.	1	.	1	6	.	2	+	+	.	.	53	3.4	1	.	.	.	.	.	17	0.1	43	2.4	(+-6)
Sherardia arvensis	.	.	.	+	1	.	1	3	1	.	.	.	.	.	.	33	0.6	.	.	.	.	2	5	33	3.7	33	1.5	(+-5)

Tab. 2. –cont.

Valerianella dentata*	.	.	.	.	.	.	+	2	5	.	.	.	.	.	.	20	1.5	.	.	3	.	1	1	50	0.8	29	1.3	(+-5)
Aethusa agrestis*	.	3	.	.	+	.	4	.	2	.	.	.	.	.	.	27	1.1	.	.	.	.	3	3	33	1.3	29	1.2	(1-4)
Sinapis arvensis	2	1	.	+	.	.	.	.	.	.	.	.	2	1	.	33	1.4	.	.	.	.	.	3	17	0.7	29	1.2	(+-3)
Galium spurium	4	.	.	.	.	.	.	1	2	.	.	.	.	.	.	20	0.8	.	.	.	2	4	.	33	2.0	24	1.2	(1-4)
Microrrhinum minus	1	.	.	+	1	.	.	.	.	.	.	.	.	.	+	27	0.3	.	.	.	.	.	.	.	.	19	0.2	(+-1)
Neslia paniculata	.	.	.	.	.	.	2	.	4	.	.	.	.	.	.	13	0.8	.	.	.	.	.	3	17	0.7	14	0.8	(2-4)
Melampyrum barbatum	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	7	0.1	.	3	3	.	.	.	33	1.3	14	0.4	(1-3)
Lithospermum arvense	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	7	0.1	.	.	1	.	1	.	33	0.2	14	0.1	(1)
Ranunculus arvensis	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	7	0.1	.	.	7	.	.	.	17	6.7	10	2.0	(2-7)
Valerianella rimosa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	1	33	0.2	10	0.1	(1)
Veronica polita	.	1	.	+	.	.	.	.	.	.	.	.	.	.	.	13	0.1	.	.	.	.	.	.	.	.	10	0.1	(+-1)
Atriplici-Chenopodietalia																													
Myosotis arvensis	1	.	.	.	+	.	4	1	3	2	+	.	.	+	.	53	1.2	1	.	2	1	1	1	83	0.7	62	1.1		
Centaurea cyanos	.	.	.	.	.	.	1	2	7	3	.	.	.	+	1	40	3.3	3	1	2	3	2	.	83	2.1	52	3.0	(+-7)
Scleranthus annuus	.	.	.	.	.	.	1	4	3	4	.	.	.	.	1	33	1.8	3	2	2	5	2	.	83	5.0	48	2.7	(1-5)
Raphanus raphanistrum	.	.	.	.	.	+	.	6	.	1	.	+	+	+	+	47	2.2	.	.	.	2	.	4	33	2.0	43	2.1	(+-6)
Persicaria maculosa	.	4	.	+	+	.	.	4	.	.	+	.	.	.	+	40	1.5	1	.	.	.	3	3	50	1.4	43	1.5	(+-4)
Xanthoxalis stricta	.	.	.	+	+	.	4	2	.	.	+	.	.	.	.	33	0.9	.	.	3	.	.	2	33	1.0	33	0.9	(+-4
Setaria pumila	.	4	.	.	.	.	1	.	.	.	.	.	.	+	.	20	0.7	.	.	3	.	2	4	50	2.7	29	1.3	(+-4)
Vicia hirsuta	.	.	.	.	.	.	.	.	3	.	+	.	.	.	+	20	0.3	.	.	4	.	3	2	50	2.7	29	1.0	(+-4)
Anthemis arvensis	.	.	.	.	.	.	.	.	5	.	.	.	.	.	.	7	1.3	1	.	.	3	3	2	67	1.8	24	1.5	(1-5)
Persicaria pallida*	.	.	+	+	+	.	.	.	.	2	.	.	.	.	2	33	1.2	.	.	.	.	.	.	.	.	24	0.9	(+-2)
Acetosella vulgaris	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	7	0.1	2	3	+	.	.	.	50	1.0	19	0.4	(+-3)
Veronica arvensis	.	.	.	.	.	.	.	1	2	.	.	.	.	.	.	13	0.2	.	.	.	.	.	4	17	1.7	14	0.6	(1-4)
Spergula arvensis	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	7	0.1	.	.	.	4	.	.	17	1.7	10	0.5	(1-4)
Vicia tetrasperma	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	7	0.1	.	.	.	.	2	.	17	0.3	10	0.1	(1-2)
Logfia arvensis	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	7	0.1	.	1	.	.	.	.	17	0.1	10	0.1	(1)
Matricaria recutita	.	.	.	.	.	.	.	.	.	.	.	+	+	.	.	13	0.1	.	.	.	.	.	.	.	.	10	0.1	(+)
Setaria viridis	.	.	.	.	+	.	.	.	.	.	+	.	.	.	.	13	0.1	.	.	.	.	.	.	.	.	10	0.1	(+)

Tab. 2. –cont.

Sisymbrietalia																															
Conyza Canadensis	.	3	.	.	.	.	.	.	.	.	.	+	+	.	+	27	0.4	.	.	.	.	.	1	17	0.2	24	0.3	(+-3)			
Lactuca serriola	.	.	+	.	.	.	.	.	.	.	.	+	+	.	.	20	0.1	1	.	.	.	.	.	17	0.2	19	0.1	(+-1)			
Stellarietea																															
Fallopia convolvulus	4	2	1	1	1	1	4	2	2	2	1	+	+	1	1	100	3.3	4	2	2	2	4	4	100	6.0	100	4.1	(+-4)			
Anagallis arvensis	2	4	+	1	+	+	2	2	2	3	+	1	.	+	+	93	2.1	3	+	2	3	2	.	83	2.0	90	2.1	(+-4)			
Tripleurosp. perforatum	4	1	2	+	.	.	3	5	.	5	.	+	+	+	+	73	4.8	.	2	3	5	4	4	83	7.7	76	5.6	(+-5)			
Viola arvensis	2	2	.	+	.	+	3	3	1	5	+	.	+	+	.	73	2.3	2	1	2	2	.	3	83	1.8	76	2.2	(+-5)			
Polygonum aviculare	1	.	+	+	.	1	.	3	.	.	1	1	+	+	+	67	1.0	3	2	.	3	3	4	83	4.0	71	1.9	(+-4)			
Chenopodium album	.	.	+	+	+	+	3	.	.	3	1	.	+	+	1	67	1.1	3	+	.	3	.	.	50	1.4	62	1.2	(+-3)			
Stellaria media	1	2	1	.	+	.	3	3	.	3	+	.	+	.	1	67	1.5	.	.	.	2	.	3	33	1.0	57	1.3	(+-3)			
Veronica persica	.	.	.	+	+	.	2	.	4	2	.	+	.	.	.	40	1.0	2	.	.	2	2	4	67	2.7	48	1.5	(+-4)			
Atriplex patula	2	.	+	.	.	.	4	.	.	2	+	.	2	.	.	40	2.0	.	.	2	3	.	3	50	1.7	43	1.9	(+-4)			
Sonchus asper	.	.	.	.	.	.	.	1	.	3	.	.	.	.	+	20	0.3	2	1	.	3	1	+	83	1.2	38	0.6	(+-3)			
Sonchus oleraceus	.	.	+	+	+	.	2	.	.	.	.	+	.	+	+	47	0.3	.	.	.	.	.	.	.	.	33	0.2	(1-2)			
Galinsoga parviflora	.	2	.	.	.	.	3	.	.	.	+	.	.	+	.	27	0.5	1	.	.	.	.	1	33	0.2	29	0.4	(+-3)			
Vicia angustifolia	.	.	.	.	.	.	.	1	.	.	1	.	.	.	.	13	0.2	.	.	1	.	1	2	50	0.5	24	0.3	(1-2)			
Thlaspi arvense	1	.	.	.	.	.	.	1	1	.	.	.	.	.	.	20	0.1	+	.	.	+	.	.	33	0.1	24	0.1	(+-1)			
Capsella bursa-pastoris	.	.	.	.	.	.	1	2	.	.	.	.	.	.	.	13	0.2	.	+	.	.	.	3	33	0.7	19	0.3	(+-3)			
Arenaria serpyllifolia	.	2	.	+	+	.	.	.	.	.	.	.	.	.	.	20	0.2	.	.	.	.	.	2	17	0.3	19	0.2	(+-2)			
Erodium cicutarium	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	7	0.1	2	.	.	.	2	.	33	0.7	14	0.2	(+-2)			
Vicia villosa	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	13	0.1	.	.	2	.	.	.	17	0.3	14	0.1	(+-2)			
Agrostemma githago	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	7	0.1	2	.	.	.	.	.	17	0.3	10	0.1	(1-2)			
Echinochloa crus-galli	.	1	.	.	.	.	.	.	.	2	.	.	.	.	.	13	0.2	.	.	.	.	.	.	.	.	10	0.1	(1-2)			
Companions																															
A *Convolvulus arvensis*	3	2	.	+	1	2	3	.	2	4	2	+	+	1	1	87	4.2	5	3	4	4	.	4	83	9.0	86	5.5	(+-5)			
Cirsium arvense	3	3	+	+	1	.	.	2	4	4	.	+	1	1	+	80	2.7	3	.	4	3	.	3	67	3.7	76	3.0	(+-4)			
Elytrigia repens	3	.	.	2	2	.	2	.	1	4	+	+	+	.	.	60	3.2	5	2	.	4	4	4	83	8.7	67	4.8	(+-5)			
Sonchus arvensis	.	3	.	+	+	.	2	.	.	4	.	+	.	.	.	40	1.2	3	.	4	3	3	4	83	5.3	52	2.4	(+-4)			

Tab. 2. –cont.

B *Daucus carota*	.	.	.	.	.	+	.	2	.	2	.	.	+	.	.	27	0.3	2	1	.	1	.	4	67	2.2	38	0.9	(+-4)
Cichorium intybus	.	.	.	.	.	.	.	.	+	1	.	.	.	.	.	13	0.1	2	1	.	.	.	.	33	0.4	19	0.1	(+-2)
Cardaria draba	.	.	+	.	.	.	.	.	.	.	.	.	.	1	.	13	0.2	2	.	.	.	.	.	17	0.3	14	0.3	(+-2)
Linaria vulgaris	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	2	.	.	.	.	33	2.0	10	0.6	(2-4)
C *Galium aparine*	6	.	.	.	1	.	.	.	2	3	.	.	.	.	.	27	2.6	.	.	5	.	2	1	50	3.8	33	2.9	(1-6)
Lapsana communis	.	.	.	.	.	.	2	.	3	.	.	.	.	.	.	13	0.4	.	.	.	.	4	.	17	1.7	14	0.8	(2-4)
D *Plantago* major*	.	.	.	.	.	.	.	.	.	4	.	+	+	+	.	27	0.8	3	.	.	.	.	4	33	2.3	29	1.2	(+-4)
Polygonum arenastrum	.	.	.	.	.	.	5	.	.	2	.	.	.	.	.	13	1.5	.	.	.	.	.	.	.	.	10	1.0	(2-5)
Poa annua	.	.	.	+	.	.	2	.	.	.	.	.	.	.	.	13	0.2	.	.	.	.	.	.	.	.	10	0.1	(+-2)
E *Rumex crispus*	.	.	.	+	.	.	1	.	1	2	.	.	.	.	.	27	0.2	1	1	4	1	.	.	67	1.9	38	0.7	(+-4)
Mentha arvensis	.	3	.	+	1	.	2	.	.	.	.	.	.	.	.	27	0.6	.	.	.	.	.	.	.	.	19	0.5	(+-3)
Equisetum arvense	.	3	.	+	.	.	.	.	.	.	+	.	+	.	.	27	0.4	.	.	.	.	.	.	.	.	19	0.3	(+-3)
Ranunculus repens	.	.	.	+	+	.	.	.	.	.	.	.	+	.	.	20	0.1	.	.	.	.	.	.	.	.	14	0.1	(+)
Agrostis stolonifera	.	.	.	.	.	.	.	.	2	2	.	.	.	.	.	13	0.3	.	.	.	.	.	.	.	.	10	0.2	(2)
Stachys palustris	.	.	.	.	+	.	.	.	.	.	.	.	.	.	+	13	0.1	.	.	.	.	.	.	.	.	10	0.1	(+)
F *Plantago uliginosa*	.	3	.	+	.	.	3	1	.	.	.	.	.	.	.	27	0.6	.	.	1	2	.	4	50	2.1	33	1.0	(+-4)
Gypsophila muralis	.	.	.	.	.	.	3	1	.	.	.	.	.	.	.	13	0.3	.	1	.	.	.	.	17	0.2	14	0.2	(1-3)
Filaginella uliginosa	.	.	.	.	.	.	2	1	.	.	.	.	.	.	.	13	0.2	.	.	.	.	.	.	.	.	10	0.1	(1-2)
G *Achillea millef.* agg.	.	.	.	+	+	.	.	.	3	.	+	+	+	.	.	40	0.4	.	.	.	.	.	4	17	1.7	33	0.8	(+-4)
Taraxacum Ruderalia*	.	+	.	+	+	.	.	1	.	.	+	.	.	.	+	40	0.2	.	.	.	.	.	.	.	.	29	0.1	(+-1)
Agrostis gigantea	.	.	.	.	+	.	.	.	.	.	.	.	+	.	.	13	0.1	.	.	.	.	.	3	17	0.7	14	0.2	(+-3)
Stellaria graminea	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	.	3	50	0.8	14	0.2	(1-3)
Cerastium holosteoides	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	7	0.1	.	.	.	.	.	2	17	0.3	10	0.1	(1-2)
Plantago lanceolata	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	1	33	0.2	10	0.1	(1)
H *Trifolium campestre*	.	4	.	.	.	.	1	.	.	.	.	.	.	.	.	13	0.7	1	.	1	.	3	1	67	0.9	29	0.8	(1-4)
Falcaria vulgaris	.	.	+	.	.	+	.	.	.	.	+	.	+	.	.	27	0.1	4	.	.	.	.	.	17	1.7	24	0.6	(+-4)
Trifolium arvense	.	.	.	.	.	+	.	1	1	.	+	.	.	.	+	33	0.2	.	.	.	.	.	.	.	.	24	0.1	(+-1)
Achillea nobilis	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	7	0.1	.	4	.	.	.	.	17	1.7	10	0.5	(+-4)
Chondrilla juncea	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	7	0.1	2	.	.	.	.	.	17	0.3	10	0.1	(+-2)
Poa compressa	1	.	.	.	+	.	.	.	.	.	.	.	.	.	.	13	0.1	.	.	.	.	.	.	.	.	10	0.1	(+-1)

Tab. 2. –cont.

Salvia verticillata	.	.	.	.	+	.	.	.	1	.	.	.	.	.	.	13	0.1	.	.	.	.	.	.	.	.	10	0.1	(+-1)
Relics of crops																												
Triticum aestivum	.	2	.	.	.	.	1	.	.	4	.	.	.	.	.	20	0.8	.	.	.	.	.	.	.	.	14	0.6	(1-4)
Medicago sativa	.	.	.	+	+	.	.	.	.	.	.	.	.	.	.	13	0.1	.	.	.	.	.	.	.	.	10	0.1	(+)

In one relevé only: *Allium vineale* (18:+), *Amaranthus retroflexus* (16:1), *Anagallis foemina* (17:3), *Anthemis austriaca* (11:+), *Apera spica-venti* (11:+), *Aphanes arvensis* (10:2), *Artemisia campestris* (14:+), *Bifora radians* (20:1), *Bromus hordeaceus* subsp. *hordeaceus* (1:+), *Camelina microcarpa* (11:+), *Campanula rapunculoides* (21:1), *Carduus acanthoides* (17:+), *Chenopodium ficifolium* (12:+), *C. hybridum* (15:+), *C. polyspermum* (19:2), *Eryngium campestre* (16:1), *Erysimum cheiranthoides* (11:+), *Fumaria officinalis* subsp. *wirtgenii* (1:2), *Galeopsis angustifolia* (17:2), *G. bifida* (8:4), *G. tetrahit* (8:2), *Geranium pusillum* (11:+), *Glechoma hederacea* (5:+), *Lamium purpureum* (1:2), *Leopoldia comosa* (9:+), *Melilotus officinalis* (9:+), *Nigella arvensis* (17:5), *Onopordum acanthium* (12:+), *Picris hieracioides* subsp. *hieracioides* (16:1), *Polycnemum arvense* (12:+), *Robinia pseudoacacia* juv. (10:+), *Rubus* subgen. *Rubus* (18:1), *Sambucus ebulus* juv. (1:+), *Secale cereale* (16:2), *Senecio vulgaris* (16:1), *Silene vulgaris* subsp. *vulgaris* (21:+), *Sisymbrium officinale* (11:+), *Solanum nigrum* (15:+), *Trifolium flexuosum* (4:+), *Valerianella locusta* (4:+), *Vicia cracca* (21:1), *V. glabrescens* (8:1), *V. pannonica* (9:1), *V. tenuifolia* (6:+).

Localities of relevés: 1. Zemianske Podhradie (8 km N of Nové Mesto n. Váhom), 0.5 km NNW of the upper village margin (7172d), 3.7.1981; 2. Fiľakovské Kľačany, 0.5 km E on the right side of the road to Fiľakovské Kováče (7784b), 29.7.1972; 3. Budmerice (7670a), sec. Pass. et J. 1975, rel. no. 4; 4. Turčianske Teplice (7074d), sec. Pass. et J. 1975 rel. no. 5; 5. Ibid. rel. no. 6; 6. Kuchyňa (7568d), sec. Pass. et J. 1975, rel. no. 8; 7. Rudná (W of Rožňava), 0.3 km SE of the village (7388b), 28.7.1972; 8. Sása (10 km NNE of Krupina), 2 km NW of the village on the left side of the road to Dobrá Niva (7580d), 7.7.1967; 9. Horný Tisovník (NE part of the Krupinská vrchovina uplands), 1.2 km NW of the village, terrace field on the left side of the road to Povojné (7582c), 12.7.1967; 10. Sebechleby, 1.5 km W on the right side of the road to Ladzany (7779b), 24.7.1973; 11. Kuchyňa (as rel. no. 6), sec. Pass. et J. 1975, rel. no. 1; 12. Veľké Zálužie (7673d), sec. Pass. et J. 1975 rel. no. 2; 13. Ibid. rel. no. 3; 14. Ružindol (7670b), sec. Pass. et J. 1975, rel. no. 7; 15. Ibid. rel. no. 9; 16. Kozárovce (13 km NW of Levice town), 0.3 km of NE village margin (7677c), 25.7.1973; 17. Iskorňa (9 km NE of Šahy town), 0.3 km N of the village (7880c), 5.9.1963; 18. Krupina, ca. 3 km NW of the town, not far from the lonely settlement Ficberg (7680a), 7.7.1967; 19. Bzovík (SE of Krupina town), 1 km NE of the village (7680d), 24.7.1973; 20. Nandraž (SW of Jelšava town), 0.5 km NNE of the village (7387c), 23.7.1973; 21. Rožňava, ca. 2 km W of the town (7389a), 28.7.1972.

Explanatory remarks: Table 2 contains also nine relevés by Passarge originated from the paper by Passarge et Jurko (1975, tab. 7, rel. 1-9); these relevés are located only generally, but with respect to the terrain configuration their localization is doubtless. Relevés of Passarge are made in the Braun-Blanquet scale but the cover-value (CV) is adequately transformed.

Tab. 3. *Misopato-Galietum parisiensis* Kropáč et Svobodová ass. nova hoc loco.

Relevé no.	1	2	3	4	5	6	7	8	C	CV	S
Altitude (m)	260	280	270	230	240	240	250	260			
Aspect	SE	S	S	S	SW	SW	SW	SE			
Slope (degrees)	5	5	5	7	10	5	7	5			
Area analyzed (m^2)	80	65	65	30	80	65	65	50			
Total cover (%)	90	80	85	90	80	85	95	80			
Crop cover (%)	40	50	50	45	45	40	35	50			
Weed cover (%)	50	35	35	50	40	50	70	40			
Number of species	39	23	37	34	39	45	42	44			
D Ass.											
Galium anglicum*	3	4	3	4	4	2	4	3	100	6.8	(2-4)
Logfia arvensis	2	3	.	3	4	2	2	2	88	3.3	(2-4)
Misopates orontium	3	1	.	2	1	3	3	1	88	1.9	(1-3)
Vulpia myuros	4	2	3	1	2	.	1	.	75	2.4	(1-4)
Caucalidion											
Stachys annua	2	1	.	.	3	4	3	.	63	2.6	(1-4)
Anthemis austriaca	1	.	2	1	2	1	.	.	63	0.7	(1-2)
Lathyrus tuberosus	.	.	.	3	2	2	3	.	50	1.5	(2-3)
Kickxia elatine	.	.	1	2	1	.	1	.	50	0.4	(1-2)
Nigella arvensis	1	2	.	.	+	.	.	.	38	0.3	(+-2)
Anagallis foemina	.	.	.	.	.	3	.	1	25	0.6	(1-3)
Euphorbia exigua	.	.	.	+	1	.	.	.	25	0.1	(+-1)
Centaureetalia											
Mercurialis annua	4	.	.	1	.	4	5	2	63	5.3	(1-5)
Sherardia arvensis	2	.	2	.	.	4	3	2	63	2.5	(2-4)
Euphorbia helioscopia	2	.	.	.	.	1	1	3	50	0.9	(1-3)
Galium spurium	.	.	2	.	.	1	2	2	50	0.8	(1-2)
Solanum nigrum	1	.	.	.	2	.	1	2	50	0.6	(1-2)
Galeopsis ladanum	1	.	.	2	.	.	.	1	38	0.4	(1-2)
Fumaria rostellata	.	.	.	.	.	3	3	.	25	1.0	(3)
Polygonum rurivagum	.	.	.	.	.	.	1	1	25	0.1	(1)
Atriplici-Chenopodietalia											
Scleranthus annuus	4	.	.	4	4	2	2	2	75	4.5	(2-4)
Acetosella vulgaris	2	.	4	2	3	4	.	.	63	3.5	(2-4)
Raphanus raphanistrum	.	.	2	+	2	4	.	.	50	1.8	(+-4)
Vicia tetrasperma	+	1	+	.	.	.	.	1	50	0.2	(+-1)
Setaria viridis	.	.	.	.	.	3	5	4	38	4.3	(3-5)
Chenopodium polyspermum	.	.	2	.	.	.	2	3	38	1.0	(2-3)
Setaria pumila	.	.	4	5	.	.	.	.	25	3.8	(4-5)
Vicia hirsuta	.	.	1	.	.	.	1	.	25	0.1	(1)
Myosotis arvensis	1	.	.	+	.	.	.	.	25	0.1	(+-1)
Sisymbrietalia et Eragrostietalia											
Conyza canadensis	2	.	.	.	.	.	3	.	25	0.8	(2-3)

Tab. 3. – cont.

Digitaria sanguinalis	.	.	.	.	1	.	.	3	25	0.6	(1-3)
Lactuca serriola	+	.	+	.	.	.	.	.	25	0.1	(+)
Stellarietea											
Senecio vulgaris	+	3	2	2	1	3	2	2	100	2.1	(+-3
Viola arvensis	3	.	2	3	2	2	.	3	75	2.3	(2-3)
Sonchus oleraceus	.	.	1	+	1	+	2	2	75	0.7	(+-2)
Chenopodium album	2	.	2	.	+	.	5	1	63	3.1	(+-5)
Stellaria media	.	.	1	2	.	2	4	4	63	3.1	(1-4)
Anagallis arvensis	1	.	.	.	3	3	3	1	63	1.6	(1-3)
Tripleurosp. perforatum	.	2	2	1	3	2	.	.	63	1.3	(1-3)
Bromus arvensis	.	.	4	1	4	4	.	.	50	3.8	(1-4)
Capsella bursa-pastoris	.	.	.	.	.	1	2	3	38	0.8	(1-3)
Fallopia convolvulus	.	+	.	2	.	3	.	.	38	0.8	(+-3)
Fumaria officinalis	.	.	.	.	.	1	2	2	38	0.6	(1-2)
Veronica persica	.	.	.	.	.	3	4	.	25	1.8	(3-4)
Geranium pusillum	.	.	.	.	.	.	2	2	25	0.5	(2)
Galinsoga parviflora	.	.	.	.	.	.	1	2	25	0.3	(1-2)
Lamium amplexicaule	.	.	.	.	.	.	2	1	25	0.3	(1-2)
Lamium purpureum	.	.	.	+	.	.	2	.	25	0.3	(+-2)
Vicia angustifolia	.	.	.	.	.	+	2	.	25	0.3	(+-2)
Arenaria serpyllifolia	1	.	.	.	.	.	.	1	25	0.1	(1)
Thlaspi arvense	.	.	.	+	.	.	1	.	25	0.1	(+-1)
Companions											
A *Convolvulus arvensis*	3	1	.	4	.	4	4	5	75	6.8	(1-5)
Elytrigia repens	.	4	2	.	.	3	.	.	38	2.0	(2-4)
Sonchus arvensis	.	.	1	.	.	.	2	2	38	0.6	(1-2)
Cirsium arvense	.	.	2	.	.	.	2	.	25	0.5	(2)
B *Daucus carota*	2	1	2	2	.	4	3	.	75	2.6	(1-4)
Linaria vulgaris	.	+	.	.	3	3	.	3	50	1.5	(+-3)
Euphorbia esula	1	.	.	+	.	2	.	.	38	0.3	(+-2)
Berteroa incana	.	.	.	1	.	.	.	+	25	0.1	(+-1)
Picris hieracioides*	.	.	.	.	.	1	+	.	25	0.1	(+-1)
C *Galium aparine*	.	.	1	2	.	3	2	.	50	1.1	(1-3)
Epilobium lamyi	1	1	.	.	1	2	.	.	50	0.4	(1-2)
Silene alba*	.	.	.	1	.	.	.	1	25	0.1	(1)
D *Plantago* major*	2	.	.	.	.	1	.	3	38	0.8	(1-3)
Poa annua	.	.	.	.	.	.	1	1	25	0.1	(1)
E *Trifolium repens*	2	.	.	.	1	.	.	.	25	0.4	(1-2)
F *Gypsophila muralis*	1	.	.	.	1	.	.	.	25	0.1	(1)
G *Achillea millef*. agg.	2	.	.	.	2	.	.	1	38	0.6	(1-2)
Plantago lanceolata	.	.	.	.	2	1	.	.	25	0.3	(1-2)
Taraxacum Ruderalia*	1	.	.	.	.	.	.	1	25	0.1	(1)
Cerastium holosteoides	1	.	+	.	.	.	.	.	25	0.1	(+-1)
Stellaria graminea	.	.	.	1	+	.	.	.	25	0.1	(+-1)

Tab. 3. – cont.

H *Trifolium campestre*	1	2	+	2	.	3	.	.	63	1.1	(+-3)
Trifolium arvense	4	4	1	.	2	.	.	.	50	2.8	(1-4)
Poa compressa	2	1	1	.	2	.	.	.	50	0.6	(1-2)
Securigera varia	.	.	.	.	1	3	.	+	38	0.6	(+-3)
Pimpinella saxifraga	1	.	.	.	1	.	.	+	38	0.1	(+-1)
Eryngium campestre	.	+	.	.	.	4	.	.	25	1.3	(+-4)
Potentilla argentea	1	.	.	+	.	.	.	.	25	0.1	(+-1)

Species in one relevé only: *Agrostis* capillaris* (6:4), *Atriplex patula* (8:1), *Bromus sterilis* (3:1), *Cardaria draba* (4:+), *Centaurium* erythraea* (6:2), *Chenopodium strictum* (8:1), *C. urbicum* (3:+), *Chondrilla juncea* (5:1), *Cichorium intybus* (6:2), *Colymbada scabiosa* (5:+), *Cuscuta epithymum* (3:+), *Dianthus armeria* (2:+), *Erodium cicutarium* (5:1), *Hypericum perforatum* (2:+), *Lapsana communis* (7:4), *Leopoldia comosa* (5:+), *Lotus corniculatus* (1:+), *Medicago lupulina* (7:2), *Odontites vernus* (3:1), *Polycnemum arvense* (3:+), *Polygonum arenastrum* (3:1), *Potentilla* recta* (8:1), *Robinia pseudoacacia* juv. (8:+), *Rubus* subgen. *Rubus* (6:3), *Senecio jacobaea* (5:+), *Sonchus asper* (3:1), *Spergularia rubra* (5:+), *Veronica polita* (8:1), *Vicia cracca* (3:1), *V. pannonica* (2:1), *Viola* tricolor* (2:1).

All eight relevés constitute one macrolocality (7674d) situated at SE footslopes of the Zobor Mt.; this can be specified as follows: Nitrianske Hrnčiarovce (nowadays part of Nitra town), area of old vineyards, private plantations with strawberries located in a stretch from W to E (altitude and other differences see in the header): 1 and 2 - western part at forest margin, 26.7.1980; 3 – at the same place (several hundred metres further E and with the same date) but an old plantation just before winding up; 4 and 5 - more to E and down the slope, 3.8.1980; 6 and 7 - eastern part of the area, both old plantations only several hundred metres one from the other, 5.7.1981; 8 - nearly the same place several hundred metres to N (a younger plantation), 26.8.1982.

Note: Relevés nos. 1 to 5 were recorded by Z. Svobodová and relevés nos. 6 to 8 by Z. Kropáč.

Tab. 4. *Misopato-Galeopsietum ladanum* Hejný in Kropáč et Hejný 1975.

Relevé no.	1	2	3	4	5	6	7	8	C_1	CV_1	9	10	11	12	13	14	15	16	17	C_2	CV_2	C	CV	S
Altitude (m)	310	390	370	430	400	325	300	430	200	265	250	360	210	290	470	365	490							
Aspect	E	E	SWW	E	E	E	NW	W	SWW	NE	SE	SSW	E	SE	SW	-	SW							
Slope (degrees)	20	20	25	25	5	5	15	25	20	7	15	15	3	7	10	0	5							
Crop	s(Bs)	Ww	Ww	s(O)	s(Bs)	s(O)	s(Ww)	Ww	C(s)	Ww	s(Ww)	Ww	Ww	Bs	Bs	s(Ww)	Ww							
Height of stand (cm) Not stated	15	90	10	100	110	70	60	10	110															
Total cover (%)	95	95	100	75	85	85	100	100	90	85	70	90	90	95	90	60	95							
Crop cover (%) Not stated	50	60	-	75	70	70	70	-	70															
Weed cover (%)	95	70	65	75	85	85	100	70	60	50	70	45	60	50	50	60	50							
Number of species	40	40	54	42	37	41	48	53	34	34	56	38	37	38	46	38	35							
D Ass.																								
Misopates orontium	2	3	3	2	4	.	3	.	75	3.3	5	4	5	1	.	.	4	1	3	78	7.2	76	5.4	(1-5)
Kickxia elatine	+	.	1	3	5	3	4	3	88	5.3	3	3	3	.	.	1	2	3	.	67	2. 1	76	3.6	(+-5)
Galeopsis ladanum	2	.	6	4	4	3	4	5	88	1.0	.	8	1	.	.	1	2	3	4	56	1.9	71	6.1	(1-6)
Euphorbia exigua	.	2	3	1	3	1	2	4	88	2. 9	.	.	3	.	+	.	.	3	.	33	0 . 9	59	1.8	(1-4)
Diff. subass.																								
Consolida regalis*	.	.	.	.	.	.	.	.	.	.	1	2	3	3	.	3	2	3	2	89	2.5	47	1.3	(1-3)
Stachys annua	.	.	.	.	.	.	.	.	.	.	5	.	+	.	3	.	4	.	1	56	3.8	29	2.0	(+-5)
Sherardion																								
Sherardia arvensis	3	2	1	6	3	1	+	2	100	5.4	1	.	3	2	1	3	.	.	.	56	1.2	76	3.2	(+-6)
Valerianella dentate*	4	4	.	2	.	.	+	1	63	2.8	2	.	3	.	3	1	+	.	.	56	1.2	59	2.0	(+-4)
Geranium dissectum	.	.	.	.	.	.	.	2	13	0.3	.	1	.	1	.	.	.	+	.	33	0.1	24	0.2	(1-2)
Ranunculus arvensis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	1	22	0.3	12	0.1	(1-2)
Centaureetalia																								
Aethusa agrestis*	.	6	4	2	5	4	.	.	63	9.0	.	.	4	.	.	.	3	.	.	22	1.6	41	5.1	(2-6)
Avena fatua	.	.	.	.	.	.	.	.	.	.	.	2	4	.	4	3	2	.	2	67	3.3	35	1.8	(1-4)
Galium spurium	.	.	1	.	.	.	.	.	13	0.1	.	.	+	1	4	3	4	.	.	56	2.7	35	1.5	(+-4)
Polygonum rurivagum	.	.	.	.	.	.	.	.	.	.	2	1	.	.	1	3	.	3	2	67	1.4	35	0.8	(1-3)
Medicago lupulina	.	.	1	.	.	.	.	.	13	0.1	2	.	4	.	.	.	1	1	.	44	1.4	29	0.8	(1-4)
Papaver rhoeas	.	.	.	.	.	.	.	.	.	.	1	.	.	.	3	1	.	.	1	44	0.6	24	0.3	(1-3)
Euphorbia helioscopia	.	2	.	+	.	.	.	.	25	0.3	.	.	.	.	.	.	2	.	.	11	0.2	18	0.2	(+-2)

Tab. 4. – cont.

Campanula rapunculoides	.	+	3	.	.	.	.	.	25	0.5	.	.	.	.	.	.	.	.	.	.	.	12	0.2	(+-3)
Euphorbia platyphyllos*	.	.	+	.	.	.	.	1	25	0.1	.	.	.	.	.	.	.	.	.	.	.	12	0.1	(+-1)
Atriplici-Chenopodietalia																									
Anthemis arvensis	2	.	2	3	3	2	4	3	88	3.5	4	2	5	4	1	4	3	2	2	100	6.7	94	5.2	(2-5)
Scleranthus annuus	3	6	3	2	3	2	2	5	100	8.5	5	2	1	5	.	1	4	.	3	78	6.3	88	7.4	(1-6)
Raphanus raphanistrum	+	+	.	4	3	.	.	1	63	1.8	.	1	.	1	3	4	1	+	1	78	1.8	71	1.8	(+-4)
Setaria pumila	5	.	+	6	3	5	5	.	75	11.8	3	4	3	.	.	.	3	1	.	56	2.5	65	6.9	(+-6)
Centaurea cyanus	.	+	.	.	.	.	+	.	25	0.1	3	1	2	4	3	3	3	1	4	100	4.3	59	2.3	(+-4)
Myosotis arvensis	1	5	2	.	.	2	4	4	75	5.6	3	.	4	3	.	.	2	.	.	44	2.2	53	3.8	(1-5)
Vicia hirsute	1	3	4	.	.	.	.	4	50	3.1	1	.	2	.	.	1	2	.	.	44	0.6	47	1.7	(1-4)
Xanthoxalis stricta	4	.	.	.	2	.	1	.	38	1.6	3	.	4	.	2	2	.	.	.	44	2.0	41	1.8	(1-4)
Persicaria maculosa	.	.	+	+	.	2	.	+	50	0.3	1	.	5	.	.	.	3	.	.	33	2.7	41	1.6	(+-5)
Veronica arvensis	.	2	.	+	.	.	3	.	38	0.8	.	.	.	.	2	2	.	.	.	22	0.4	29	0.6	(+-3)
Acetosella vulgaris	.	1	.	.	.	.	.	1	25	0.1	.	.	.	.	.	.	1	1	2	33	0.3	29	0.2	(1-2)
Chenopodium polyspermum	.	+	.	2	.	.	.	+	38	0.3	.	.	.	.	.	3	.	.	.	11	0.4	24	0.4	(+-3)
Vicia tetrasperma	.	.	.	.	+	.	+	+	38	0.1	.	.	1	.	.	.	.	.	.	11	0.1	24	0.1	(+-1)
Apera spica-venti	.	.	.	.	.	.	.	.	.	.	.	.	.	5	2	.	.	.	2	33	2.7	18	1.4	(2-5)
Persicaria pallida*	.	.	.	.	.	.	.	.	.	.	.	3	1	.	3	.	.	.	.	33	0.9	18	0.5	(1-3)
Logfia arvensis	.	.	.	.	.	1	1	.	25	0.1	.	.	.	2	.	.	.	.	.	11	0.2	18	0.2	(1-2)
Aphanes arvensis	.	.	.	+	.	.	2	+	38	0.3	.	.	.	.	.	.	.	.	.	.	.	18	0.1	(+-2)
Spergula arvensis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	2	.	22	1.3	12	0.7	(2-4)
Setaria viridis	.	.	1	.	2	.	.	.	25	0.3	.	.	.	.	.	.	.	.	.	.	.	12	0.1	(1-2)
Viola tricolour*	.	.	.	.	.	2	1	.	25	0.3	.	.	.	.	.	.	.	.	.	.	.	12	0.1	(1-2)
Sisymbrietalia																									
Conyza Canadensis	.	.	.	3	.	2	5	.	38	3.3	.	.	2	2	.	.	.	2	.	33	0.7	35	1.9	(2-5)
Lepidium campestre	.	.	.	.	.	1	2	3	38	0.8	.	.	.	.	.	.	.	.	.	.	.	18	0.4	(1-3)
Lactuca serriola	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	1	.	.	22	0.3	12	0.1	(1-2)
Stellarietea																									
Anagallis arvensis	1	5	5	5	.	3	3	4	88	9.8	3	4	4	3	2	4	3	+	3	100	5.3	94	7.4	(+-5)
Polygonum aviculare	3	4	2	.	7	3	3	4	88	9.3	4	1	3	3	1	.	2	1	4	89	3.5	88	6.2	(1-7)
Viola arvensis	2	3	3	3	4	.	.	2	75	3.3	.	2	2	3	3	2	2	2	3	89	2.4	82	2.8	(2-4)

Tab. 4. – cont.

Tripleurospermum perf.	.	.	.	1	3	.	2	+	50	0.8	.	5	4	4	6	5	5	1	5	89	14.5	71	8.1	(+-6)
Veronica persica	4	3	1	.	2	2	.	1	75	2.4	2	.	4	.	3	4	2	1	.	67	3.2	71	2.8	(1-4)
Atriplex patula	+	.	.	4	5	1	.	.	50	3.8	3	1	.	.	.	1	2	2	3	67	1.4	59	2.6	(+-5)
Fallopia convolvulus	.	4	3	.	.	2	1	3	63	2.6	3	.	2	2	3	.	2	.	.	56	1.6	59	2.0	(1-4)
Chenopodium album	2	.	+	.	.	.	.	.	25	0.3	1	.	.	1	3	1	1	+	2	78	0.9	53	0.6	(+-3)
Sonchus asper	.	.	.	2	.	.	1	.	25	0.3	1	2	4	.	.	2	3	.	2	67	2.3	47	1.4	(1-4)
Vicia angustifolia	.	3	+	.	+	.	1	2	63	0.8	.	.	.	.	.	2	3	.	.	22	0.7	41	0.7	(+-3)
Stellaria media	.	.	.	.	.	.	.	.	.	.	1	.	4	.	4	2	2	.	.	56	2.7	29	1.4	(1-4)
Sonchus oleraceus	.	.	1	2	.	.	.	2	38	0.6	.	.	2	.	.	2	.	.	.	22	0.4	29	0.5	(1-2)
Capsella bursa-pastoris	.	.	.	.	.	.	.	.	.	.	.	.	1	2	2	2	.	.	.	44	0.7	24	0.4	(1-2)
Agrostemma githago	.	2	.	.	.	.	.	1	25	0.3	.	4	.	.	.	.	.	.	.	11	1.1	18	0.7	(1-4)
Lamium amplexicaule	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	3	2	.	.	33	0.9	18	0.5	(2-3)
Galinsoga parviflora	.	.	.	.	.	.	.	.	.	.	.	.	5	.	.	.	1	.	.	22	2.3	12	1.2	(1-5)
Lamium purpureum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	2	.	.	22	0.4	12	0.2	(2)
Companions																								
A *Convolvulus arvensis*	2	6	3	5	6	4	4	6	100	17.0	4	4	.	2	4	4	4	4	4	89	8.0	94	12.2	(2-6)
Cirsium arvense	4	5	3	4	4	2	2	5	100	9.8	4	3	2	.	.	4	.	2	.	56	3.1	76	6.2	(2-5)
Elytrigia repens	5	2	.	4	5	.	2	2	75	7.0	3	4	.	.	4	4	4	.	4	67	6.0	71	6.5	(2-5)
Sonchus arvensis	5	4	.	4	4	.	+	4	75	7.5	3	2	4	.	.	.	3	.	3	56	2.7	65	4.9	(+-5)
B *Daucus carota*	3	4	5	3	.	5	.	1	75	7.3	4	.	.	2	.	.	.	3	4	44	2.9	59	5.0	(1-5)
Linaria vulgaris	4	1	1	+	4	.	1	.	75	2.7	.	2	.	1	.	.	.	.	.	22	0.3	47	1.4	(+-4)
Cichorium intybus	.	.	1	3	.	.	.	+	38	0.6	.	2	+	1	.	.	.	.	.	33	0.3	35	0.4	(+-3)
Artemisia vulgaris	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	+	.	.	22	0.1	12	0.1	(+-1)
C *Glechoma hederacea*	5	.	1	.	2	2	.	.	50	3.1	.	.	.	.	.	.	.	.	.	.	.	24	1.4	(1-5)
Galium aparine	.	.	.	.	.	.	.	.	.	.	.	2	.	.	4	3	.	.	.	33	1.8	18	0.9	(2-4)
Galeopsis tetrahit	.	.	+	.	.	+	.	1	38	0.1	.	.	.	.	.	.	.	.	.	.	.	18	0.1	(+-1)
Galeopsis bifida	.	4	.	.	.	.	.	.	13	1.3	.	.	.	.	.	.	.	.	2	11	0.2	12	0.7	(2-4)
Lapsana communis	.	.	+	.	.	.	.	.	13	0.1	.	.	2	.	.	.	.	.	.	11	0.2	12	0.1	(+-2)
Rubus subgen. *Rubus*	+	.	.	.	2	.	.	.	25	0.3	.	.	.	.	.	.	.	.	.	.	.	12	0.1	(+-2)
D *Plantago* major*	.	.	.	.	.	.	.	.	.	.	4	2	3	.	.	.	2	6	.	56	5.3	29	2.8	(2-6)
Polygonum arenastrum	.	.	.	.	.	.	.	.	.	.	.	.	4	2	.	.	.	5	.	33	3.6	18	1.9	(2-5)

Tab. 4. – cont.

Poa annua	.	.	.	.	.	.	.	.	.	.	.	.	2	.	1	.	.	.	.	22	0.3	120.1	(1-2)
E *Stachys palustris*	5	5	.	4	5	.	1	4	75	10.1	.	.	.	.	.	.	.	.	2	11	0.2	414.9	(1-5)
Mentha arvensis	5	3	2	3	5	1	.	2	88	6.6	.	.	.	.	.	.	.	.	.	.	.	413.1	(1-5)
Ranunculus repens	6	4	2	.	3	3	.	3	75	6.8	.	.	.	.	.	.	.	.	.	.	.	353.2	(2-6)
Agrostis stolonifera	.	4	2	.	.	.	2	5	50	4.3	.	.	.	.	.	.	.	.	.	.	.	242.0	(2-5)
Trifolium repens	3	.	5	.	.	2	.	.	38	3.3	.	.	.	.	.	.	.	1	.	11	0.1	241.6	(1-5)
Rumex crispus	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	1	1	1	44	0.2	240.1	(1)
Tussilago farfara	.	4	.	.	5	.	.	2	38	4.0	.	.	.	.	.	.	.	.	.	.	.	181.9	(2-5)
Rorippa sylvestris	2	.	.	.	.	.	1	.	25	0.3	.	.	2	.	.	.	.	.	.	11	0.2	180.3	(1-2)
Equisetum arvense	.	3	.	.	.	.	.	5	25	3.0	.	.	.	.	.	.	.	.	.	.	.	121.4	(3-5)
F *Gypsophila muralis*	.	.	.	3	.	6	5	+	50	6.8	3	2	4	.	.	.	.	4	.	44	2.9	474.7	(+-6)
Plantago uliginosa	2	.	1	3	.	4	4	.	63	3.3	.	.	4	.	3	2	.	.	.	33	1.8	472.5	(1-4)
Filaginella uliginosa	.	.	.	3	.	3	5	.	38	3.5	.	.	2	.	.	1	.	2	.	33	0.5	351.9	(1-5)
Spergularia rubra	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	1	1	33	0.1	180.1	(+-1)
G *Trifolium pratense*	+	.	2	+	2	7	5	1	88	8.1	.	.	.	.	.	.	.	1	.	11	0.1	473.8	(+-7)
Plantago lanceolata	.	.	1	2	.	6	.	.	38	4.1	.	.	1	2	.	.	.	3	.	33	0.7	352.3	(1-6)
Achillea millef. agg.	4	2	.	1	.	+	1	4	75	2.9	.	.	.	.	.	.	.	.	.	.	.	351.4	(+-4)
Lotus corniculatus	+	.	5	+	2	.	.	+	63	2.8	.	.	.	.	.	.	.	.	.	.	.	291.3	(+-5)
Stellaria graminea	.	2	3	.	.	.	.	3	38	1.3	.	.	.	.	.	.	1	2	.	22	0.3	290.7	(1-3)
Taraxacum sect. *Ruder.*	2	.	2	1	.	.	.	.	38	0.6	.	.	.	2	.	.	1	.	.	22	0.3	290.4	(1-2)
Veronica serpyllifolia	.	.	.	.	.	1	1	.	25	0.1	.	.	.	.	.	.	.	1	.	11	0.1	180.1	(1)
Anthylis vulneraria	.	.	+	.	.	.	6	.	25	3.8	.	.	.	.	.	.	.	.	.	.	.	121.8	(+-6)
Cuscuta trifolii	.	.	+	.	.	4	.	.	25	1.3	.	.	.	.	.	.	.	.	.	.	.	120.6	(+-4)
Crepis capillaries	.	.	.	.	.	.	.	.	.	.	.	2	.	1	.	.	.	.	.	22	0.3	120.1	(1-2)
Phleum pratense	.	1	.	.	.	.	2	.	25	0.3	.	.	.	.	.	.	.	.	.	.	.	120.1	(1-2)
Vicia cracca	.	.	2	.	.	.	.	.	13	0.3	.	.	.	1	.	.	.	.	.	11	0.1	120.1	(1-2)
H *Trifolium campestre*	1	.	2	.	3	1	2	2	75	1.4	.	1	4	1	.	.	.	.	1	44	1.3	591.3	(1-4)
Trifolium arvense	.	.	2	.	4	3	4	3	63	3.8	2	.	2	2	.	.	.	.	1	44	0.7	532.1	(1-4)
Poa compressa*	5	.	.	.	.	.	.	3	25	3.0	.	2	.	.	.	.	.	.	4	22	1.3	242.1	(2-5)
Knautia arvensis*	1	.	.	.	1	.	.	.	25	0.1	.	.	.	.	.	.	.	.	.	.	.	120.1	(1)
Trifolium flexuosum	.	.	+	.	.	.	.	1	25	0.1	.	.	.	.	.	.	.	.	.	.	.	120.1	(+-1)

Tab. 4. – cont.

	1	2	3	4	5	6	7	8			9	10	11	12	13	14	15	16	17					
Hypericum perforatum	.	.	.	.	.	+	.	.	13	0.1	.	.	.	.	.	.	.	+	.	11	0.1	12	0.1	(+)
Relics of crops																								
Secale cereale	.	1	3	.	.	.	.	2	38	0.8	.	.	.	.	.	.	.	.	4	11	1.0	24	1.0	(1-4)

In one relevé only: *Achillea nobilis* (12:+), *Allium vineale* (8: +), *Anagallis foemina* (14:1), *Anthemis tinctoria* (12:+), *Arabidopsis thaliana* (14:2), *Atriplex oblongifolia* (11:2), *Barbarea vulgaris* (7:1), *Brassica rapa* (7:+), *Bromus arvensis* (12:1), *B. secalinus* (7:2), *Campanula patula* (6:+), *Cerastium holosteoides* (1:+), *Colymbada scabiosa* (7:2), *Descurainia sophia* (13:1), *Digitaria ischaemum* (4:4), *Diplotaxis muralis* (4:3), *Echinochloa crus-galli* (10:3), *Echium vulgare* (10:1), *Erodium cicutarium* (15:2), *Euphorbia cyparissias* (7:1), *E. stricta* (3:+), *Fagopyrum esculentum* (3:+), *Falcaria vulgaris* (15:1), *Galeopsis pubescens* (17:1), *Galium mollugo* (6:5), *Geranium pusillum* (5:2), *Leopoldia comosa* (17:+), *Leucanthemum vulgare* (6:3), *Lythrum hyssopifolium* (11:1), *Matricaria discoidea* (11:2), *Pimpinella saxifraga* (3:+), *Poa trivialis* (13:2), *Potentilla argentea* (16: 2), *Ranunculus sardous* (11:4), *Rumex* obtusifolius* (11:+), *Sedum maximum* (5:2), *Silene* alba* (15:1), *S. gallica* (2:1), *S. noctiflora* (11:2), *Sinapis arvensis* (13:1), *Thlaspi arvense* (13: 1), *Trifolium dubium* (8:+), *T. hybridum* (8:+), *Valerianella rimosa* (9:1), *Veronica polita* (11:2), *Vicia glabrescens* (12:1).

Localities of relevés: 1. Ruská Poruba (12 km SE of Stropkov), ca. 0.5 km SW of the village, on a slope of the Kopanica Hill (6896d), 30.8.1956; 2. Závada (10 km EES of Stropkov), ca. 0.8 km SSW, on a slope of the Lipovica Hill (6896b), 16.7.1957; 3. Prituľany (12 km SE of Stropkov), ca. 0.8 km N, on a slope of the Kopanica Hill (6896d), 17.7.1957; 4. Ibid., ca. 1.7 km NWW of the village (6896d), 3.9.1956; 5. Ruská Poruba, ca. 1 km SW, in upper part of the Kopanica Hill (6896d), 6.9.1956; 6. Piskorovce (12 km SSE of Stropkov), ca. 0.8 km SWW (6896c), 19.8.1957; 7. Nižná Sitnica (18 km SSE of Stropkov), E of the village, not far from the elevation point 32O m (6996b), 21.8.1957; 8. Ruská Poruba, ca. 1 km NE of the village (6896d), 15.7.1957; 9. Jasenov (S of Humenné), 1.4 km SE of the church in the village (7197a), 27.7.1971; 10. Dolná Strehová (11 km E of Modrý Kameň), ca. 2 km SWW, not far from the small village Horný Bukovec (7782d), 24.7.1973; 11. Silická Jablonica, 1 km EEN on the left side of the road to Jablonov nad Turňou (7489b), 27.7.1972; 12. Gočaltovo (8 km E of Jelšava), W margin of the village (7388c), 23.7.1973; 13. Pinciná (7 km EEN of Lučenec), 2 km SWW on the right side of the road to Lučenec (7684a), 28.6.1974; 14. Cinobaňa, 0.5 km EEN, on the left side of the road to Turíčky (7583d), 1.7.1974; 15. Litava (10 km SE of Krupina), 1 km SW of the village (7781a), 24.7.1973; 16. Ipeľské Úľany (NWW of Vinica), ca. 0.7 km SWW of the village (7880c), 12.9.1963; 17. Čelovce (8 km NNE of Vinica), ca. 3 km NNW, near the crossroad to Cerovo village (7780d), 21.7.1973.

Remark: Records of the relevés and their locations are selected among those published in Kropáč et Hejný (1975, Tab. 1 and Tab. 2): (a) numbers 1 to 8 here correspond to the nrs. 1, 2, 4, 7, 9, 10, 11, 15 (Tab. 1) and (b) numbers 9 to 17 correspond partly to the nrs. 1, 3, 4, 5, 9 (Tab. 2, sequence altered) and four records (11, 12, 13, 14) are published for the first time.

Tab. 5. *Aethuso cynapium-Galeopsietum tetrahit* G. Müller 1964.

Relevé no.	1	2	3	4	5	6	7	8	9	10	11	12	13	C	CV	S
Altitude (m)	640	635	630	680	690	580	640	640	740	630	590	540	550			
Aspect	SW	W	SW	NWW	S	S	S	EEN	SE	W	-	N	S			
Slope (degrees)	7	7	10	15	15	20	10	15	25	5	0	15	7			
Crop	Bs	R	Bs	Ww	Ww	Bs	O	Bs	Bs	Bs	Bs	Bs	P			
Height of stand (cm)	65	150	55	90	80	70	120	70	60	50	60	60	40			
Total cover (%)	95	100	90	85	85	95	95	95	90	85	90	100	80			
Crop cover (%)	65	60	60	55	60	70	70	70	60	60	65	60	50			
Weed cover (%)	60	70	60	50	50	55	50	50	60	50	50	70	60			
Number of species	41	41	34	44	38	42	29	49	43	42	49	65	50			
D Ass.																
Galeopsis tetrahit	4	4	.	4	4	3	1	3	3	3	3	.	2	85	4.8	(1-4)
Neslia paniculata	3	4	3	1	1	2	2	2	2	3	.	4	.	85	3.2	(1-4)
Diff. subass.																
Acetosella vulgaris	.	.	.	.	.	2	3	2	.	.	.	.		23	0.6	(2-3)
Lathyrus tuberosus	.	.	.	+	.	.	.	.	.	4	.	4	3	31	1.9	(+-4)
Euphorbia exigua	.	.	.	.	.	.	.	.	.	1	2	3	.	23	0.5	(1-3)
Diff. var.																
Gladiolus imbricatus	.	.	.	.	.	.	.	.	3	+	2	.	.	23	0.5	(+-3)
Sherardion																
Sherardia arvensis	4	.	4	.	.	1	1	2	2	.	4	4	3	69	3.8	(1-4)
Valerianella dentate*	2	2	3	.	.	.	4	3	3	3	4	4	.	69	3.8	(2-4)
Geranium dissectum	.	2	3	2	3	.	.	2	.	.	4	2	.	54	2.0	(2-4)
Centaureetalia																
Sinapis arvensis	5	6	.	2	2	.	.	4	5	4	5	5	5	77	11.8	(2-6)
Avena fatua	.	3	.	+	.	5	.	4	+	4	3	5	1	69	5.3	(+-5)
Medicago lupulina	4	2	4	.	.	.	.	1	.	2	3	4	1	62	3.2	(1-4)
Campanula rapunculoides	.	.	1	.	.	2	.	2	1	3	2	4	3	62	1.9	(1-4)
Euphorbia helioscopia	1	1	.	1	.	.	.	2	.	.	.	2	1	46	0.5	(1-2)
Lithospermum arvense	.	.	.	.	.	3	.	.	.	.	.	3	.	15	0.6	(3)
Atriplici-Chenopodietalia																
Myosotis arvensis	2	3	4	2	3	2	1	3	3	1	1	1	3	100	2.9	(1-4)
Anthemis arvensis	1	3	4	.	1	3	2	3	+	3	+	1	.	85	2.6	(+-4)
Scleranthus annuus	1	.	2	.	.	4	3	.	1	2	3	1	.	62	1.8	(1-4)
Persicaria maculosa	.	3	.	2	3	3	.	.	4	2	.	.	2	54	2.2	(2-4)
Vicia hirsute	.	3	.	.	.	3	1	3	3	.	1	1	.	54	1.3	(1-3)
Raphanus raphanistrum	3	.	.	.	.	.	3	1	2	.	1	1	1	54	0.9	(1-3)
Veronica arvensis	.	+	1	.	3	.	.	2	3	.	.	.	+	46	0.8	(+-3)
Centaurea cyanus	2	.	1	.	.	4	6	.	.	.	+	.	.	38	3.3	(+-6)
Cerastium glomeratum	.	.	.	.	.	.	.	2	.	.	.	.	+	15	0.2	(+-2)
Persicaria pallida*	.	1	.	.	.	.	.	.	.	.	.	.	1	15	0.1	(1)
Setaria viridis	.	.	.	.	.	1	.	.	.	.	.	.	+	15	0.1	(+-1)
Stellarietea																
Viola arvensis	2	2	3	3	3	3	3	2	2	2	2	3	1	100	2.8	(1-3)

Tab. 5. – cont.

Stellaria medi	3	3	3	4	4	3	.	4	3	4	1	4	4	92	6.2	(1-4)
Veronica persica	4	3	4	4	4	.	.	3	4	3	4	3	5	85	7.4	(3-5)
Fallopia convolvulus	2	3	.	4	4	3	2	3	3	2	.	3	2	85	3.7	(2-4)
Chenopodium album	1	2	.	3	2	2	.	2	.	3	.	1	2	69	1.5	(1-3)
Polygonum aviculare	.	2	.	3	3	3	.	3	.	.	.	2	2	54	1.7	(2-3)
Anagallis arvensis	.	.	2	.	1	.	2	.	3	.	1	3	1	54	1.0	(1-3)
Atriplex patula	1	1	.	2	2	3	1	.	.	.	.	.	2	54	0.9	(1-3)
Agrostemma githago	.	4	1	.	.	.	.	2	.	.	2	5	.	38	2.7	(1-5)
Tripleurosp. Perforatum	.	.	.	3	2	.	4	.	.	4	.	1	.	38	2.0	(1-4)
Vicia angustifolia	.	3	.	.	.	.	.	2	.	1	2	1	.	38	0.7	(1-3)
Capsella bursa-pastoris	2	.	.	1	2	2	.	2	.	.	.	.	.	38	0.7	(1-2)
Lamium purpureum	.	.	.	2	3	.	.	1	4	.	.	.	.	31	1.3	(1-4)
Thlaspi arvense	.	.	.	2	.	+	1	.	.	.	.	.	2	31	0.4	(+-2)
Arenaria serpyllifolia	.	.	.	.	.	.	+	+	.	.	.	1	2	31	0.2	(+-2)
Bromus secalinus	3	2	.	.	.	.	.	.	.	1	.	.	.	23	0.5	(1-3)
Vicia sativa	1	.	.	1	.	2	.	.	.	.	.	.	.	23	0.2	(1-2)
Sonchus asper	.	.	.	+	.	.	.	.	.	.	1	.	1	23	0.1	(+-1)
Fumaria officinalis	.	.	.	1	.	.	.	.	.	.	.	+	.	15	0.1	(+-1)
Companions																
A *Cirsium arvense*	4	4	5	2	4	4	2	4	4	5	4	2	4	100	9.7	(2-5)
Sonchus arvensis	3	3	4	4	.	3	.	5	5	3	2	4	2	85	6.9	(2-5)
Convolvulus arvensis	3	.	4	.	3	4	2	4	2	4	3	4	3	85	5.4	(2-4)
Elytrigia repens	.	.	.	3	3	3	.	3	1	3	.	3	1	62	1.9	(1-3)
B *Daucus carota*	.	.	2	.	.	.	3	.	.	.	1	1	2	38	0.7	(1-3)
Linaria vulgaris	.	.	2	.	.	.	.	.	.	.	.	+	1	23	0.2	(+-2)
Echium vulgare	.	.	1	.	.	.	.	+	.	.	.	.	.	23	0.1	(+-1)
Melilotus officinalis	.	.	.	.	.	.	.	.	.	.	2	6	.	15	2.5	(2-6)
C *Galium aparine*	4	2	4	4	2	4	4	3	3	3	3	3	4	100	6.5	(2-4)
Galeopsis bifida	2	3	.	3	2	4	.	+	3	3	2	1	.	77	2.6	(+-4)
Lapsana communis	2	.	3	3	4	3	.	2	3	.	.	1	.	62	2.3	(1-4)
Silene alba*	3	.	.	.	.	.	.	.	.	2	1	1	.	31	0.5	(1-3)
Glechoma hederacea	.	.	.	.	.	.	.	.	.	1	.	1	1	23	0.1	(1)
Poa trivialis	.	.	.	.	.	.	.	.	1	.	.	.	1	15	0.1	(1)
D *Plantago* major*	1	.	.	3	3	2	.	2	.	.	3	.	1	54	1.3	(1-3)
Poa annua	.	1	.	3	3	.	.	.	2	.	.	.	.	31	0.8	(1-3)
Matricaria discoidea	.	+	.	3	.	.	.	.	.	.	.	.	.	15	0.3	(+-3)
E *Rumex crispus*	2	2	2	3	1	2	.	3	1	2	2	2	1	92	1.8	(1-3)
Mentha arvensis	3	4	.	4	4	.	.	4	4	3	3	3	4	77	5.8	(3-4)
Stachys palustris	3	.	3	1	.	3	.	3	3	.	3	3	4	69	3.0	(1-4)
Ranunculus repens	.	2	.	2	2	.	.	3	2	4	3	2	4	69	2.9	(2-4)
Potentilla anserine	.	4	.	5	3	.	.	2	2	3	3	2	.	62	3.7	(2-5)
Tussilago farfara	3	3	.	4	.	.	.	3	4	3	3	3	.	62	3.4	(3-4)
Equisetum arvense	.	.	.	.	4	.	.	.	.	4	2	.	3	31	2.0	(2-4)
Symphytum officinale	.	.	.	4	.	.	.	.	.	3	3	+	.	31	1.4	(+-4)

Tab. 5. – cont.

Agrostis stolonifera	.	.	.	.	2	.	.	.	.	.	.	3	2	23	0.6	(2-3)
Trifolium repens	.	.	.	.	.	.	.	.	.	3	.	2	.	15	0.5	(2-3)
G *Achillea millef.* agg.	2	3	.	1	+	3	2	3	2	.	3	2	.	77	1.9	(+-3)
Agrostis gigantean	.	2	.	.	.	.	.	4	.	2	3	.	.	31	1.4	(2-4)
Stellaria graminea	3	.	.	.	.	.	3	.	.	2	2	.	.	31	0.9	(2-3)
Vicia cracca	.	2	.	.	.	.	.	1	.	.	.	2	2	31	0.5	(1-2)
Taraxacum sect.*Ruder*	.	.	.	.	.	.	.	1	+	1	+	.	.	31	0.1	(+-1)
Cerastium holosteoides	.	.	1	.	.	.	.	.	.	1	.	2	.	23	0.2	(1-2)
Prunella vulgaris	.	.	.	.	.	.	.	1	.	.	1	.	1	23	0.1	(1)
Plantago lanceolata	.	.	.	.	.	.	.	.	.	.	+	1	+	23	0.1	(+-1)
Festuca pratensis	+	.	.	.	.	.	.	.	3	.	.	.	.	15	0.3	(+-3)
H *Salvia verticillata*	+	.	2	.	+	.	.	.	.	.	1	4	.	38	1.0	(+-4)
Securigera varia	1	.	2	.	+	.	.	.	.	.	.	2	.	31	0.4	(+-2)
Trifolium aureum	.	.	.	.	.	.	.	.	.	.	3	3	.	15	0.6	(3)
Poa compressa*	.	.	.	.	.	.	2	.	.	.	.	2	.	15	0.3	(2)
Relics of crops																
Avena sativa	.	2	.	.	.	.	.	.	3	.	3	+	.	31	0.8	(+-3)
Solanum nigrum	.	.	2	.	.	.	.	.	2	.	.	.	.	15	0.3	(2)

In one relevé only: *Apera spica-venti* (6:2), *Brassica napus* (3: 1), *Carduus acanthoides* (12:1), *Chenopodium glaucum* (4:1), *C. polyspermum* (6:1), *Colymbada scabiosa* (12:1), *Descurainia sophia* (3:+), *Equisetum sylvaticum* (8:1), *Erodium cicutarium* (4:1), *Euphorbia cyparissias* (3:1), *E.* esula* (6:1), *Filaginella uliginosa* (13:1), *Galeopsis pubescens* (6:2), *Galium spurium* (1: 1), *Hordeum distichon* (13:1) *Knautia* arvensis* (5:+), *Lathyrus pratensis* (9:1), *Lolium multiflorum* (13:+), *L. temulentum* (2:5), *Medicago sativa* (12:2), *Plantago uliginosa* (13:2), *Polygonum arenastrum* (7:2), *Ranunculus arvensis* (6:1), *Rhinanthus alectorolophus* (12:1), *Rorippa sylvestris* (11:+), *Rumex* obtusifolius* (5:4), *Secale cereale* (6:2), *Senecio vulgaris* (2:+), *Silene noctiflora* (4:1), *Silene* vulgaris* (1:1), *Sonchus oleraceus* (13:1), *Spergula arvensis* (6:2), *Stachys annua* (7:2), *Veronica polita* (4:2), *Vicia sepium* (12:1), *V. villosa* (6:1), *Viola* tricolor* (9:1).

Localities of relevés: 1. Mojtín (12 km E of Ilava), NE margin of the village (7076a), 2.7.1974; 2. Kyjov (20 km SE of Stará Ľubovňa), 1 km SW of the village (6791d), 17.7.1971; 3. Mojtín, N margin of the village (7076a), 2.7.1974; 4. Zliechov (15 km EES of Ilava), 1.3 km EES of the village, on the left side of the road to Čičmany (7076d), 6.7.1981; 5. Čičmany, 0.6 km SW, on the right side of the road to Zliechov (7077a), 6.7.1981; Banská Štiavnica, ca. 1.5 km E of the town (7579b), 25.7.1973; 7. Polichno (15 km NW of Lučenec), ca. 2 km NWW, on the right side of the road to Abelová (7582d), 8.7.1967; 8. Litmanová (NW of Stará L ubovňa), ca. 2 km SSE, above the right bank of the brook Rozdiel (6689b), 15.7.1971; 9. Zákamenné, ca. 0.5 km from the SW village margin, on the right side of the road to Oravská Lesná (6681b), 11.7.1971; 10. Kyjov, not far from the locality no. 2, only down the slope on terrace field (6791d), 17.7.1971; 11. Kyjov, 2.5 km W, on the right side of the road to Ľubotín (6791c), 22.7.1971; 12. Šarišské Jastrabie (NW of Kyjov), 1.3 km W of the village (6791c), 16.7.1971; 13. Terchová, 0.8 km E, above the right bank of the brook Biely Potok (6780a), 30.8.1966.

Tab. 6. *Spergulo arvensis-Scleranthetum annui* Kuhn 1937.

Relevé no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	C	CV	S
Altitude (m)	690	830	665	730	610	735	737	740	745	615	635	600	650	660	700	580	690	650	990	860	870	855	850			
Aspect	NW	N	-	SSW	SW	-	NE	NE	SW	NW	NW	-	NW	NW	NNE	NW	SW	SW	SW	SW	SE	-	NE			
Slope (degrees)	20	10	0	5	5	0	5	20	15	15	15	0	10	15	30	15	7	15	15	10	15	0	7			
Crop	P	P	P	R	LGs	O	P	O	Bs(c)	s(Bs)	P	P	O	P	P	Bs	R	R	R	R	R	R	R			
Height of stand (cm)	40	40	50	150	140	60	40	60	40	10	40	50	120	50	40	50	130	150	130	130	180	160	150			
Total cover (%)	70	70	90	75	100	100	75	95	100	80	100	100	85	90	90	95	90	95	100	95	95	95	90			
Crop cover (%)	50	40	60	40	70	70	40	60	50	5	50	60	60	50	60	50	55	65	70	60	60	60	50			
Weed cover (%)	30	50	55	60	60	60	50	60	70	80	70	60	50	60	50	70	65	60	65	60	55	60	60			
Number of species	41	28	46	34	37	43	39	52	42	44	46	44	48	48	45	47	41	41	22	41	33	34	29			
D Ass.																										
Scleranthus annuus	2	5	1	6	5	4	1	4	6	3	1	1	3	2	1	4	4	2	4	4	3	5	5	100	9.6	(1-6)
Spergula arvensis	4	5	2	4	1	2	3	3	7	4	2	1	4	3	.	3	2	.	7	5	3	3	3	91	8.5	(1-7)
Diff. subass.																										
Geranium dissectum	.	.	.	.	.	.	.	+	.	1	3	3	1	1	1	2	.	.	.	.	.	.	.	35	0.5	(1-3)
Sherardia arvensis	.	.	.	.	.	.	.	.	.	1	.	1	.	+	.	2	2	1	.	.	.	.	.	26	0.2	(1-3)
Valerianella dentate*	.	.	.	.	.	.	.	.	.	.	.	.	.	+	4	+	.	.	.	.	.	.	.	13	0.4	(+-4)
Neslia paniculata	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	2	.	.	.	.	.	.	9	0.1	(+-2)
Diff. var.																										
Rhinanthus alectorolophus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	6	6	5	1	4	26	4.4	(1-6)
Scleranthion																										
Anthemis arvensis	.	4	2	2	5	1	.	2	5	4	.	3	+	1	2	4	3	3	1	5	5	.	6	83	7.0	(+-6)
Veronica arvensis	2	.	.	.	.	.	.	2	1	3	3	2	2	3	3	3	.	.	.	1	.	2	1	57	1.4	(1-3)
Aphanes arvensis	1.	.	.	.	.	.	.	1	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	13	0.2	(1-3)
Atriplici-Chenopodietalia																										
Myosotis arvensis	2	1	2	1	2	3	1	2	+	2	4	3	2	2	3	3	.	4	.	2		3	3	3 9	1 2.9	(+-4)
Raphanus raphanistrum	1	3	2	3	.	2	2	3	5	1	2	2	6	3	1	.	4	.	3	4	4	4	2	87	5.4	(1-6)
Acetosella vulgaris	3	4	2	5	1	2	.	3	4	.	1	.	2	2	.	2	3	1	3	3	.	4	4	78	3.9	(1-5)
Vicia hirsute	2	.	1	2	3	3	+	1	2	3	3	3	3	2	.	3	.	2	.	1	.	.	4	74	2.2	(+-4)

Tab. 6. – cont.

Persicaria maculosa	4	4	4	.	.	4	4	5	6	.	2	+	.	4	3	4	2	.	4	2	.	.	.	65	6.1	(+-6)
Persicaria pallida*	1	1	.	.	.	2	1	.	2	.	2	2	1	.	.	.	.	.	.	.	.	.	.	35	0.4	(1-2)
Centaurea cyanus	.	.	+	1	6	.	.	.	.	1	.	.	.	.	.	.	4	2	.	.	.	.	.	26	1.9	(+-6)
Arabidopsis thaliana	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	.	.	13	0.1	(1)
Centaureetalia																										
Campanula rapunculoides	1	.	.	.	.	.	+	3	1	2	2	2	.	.	2	2	.	2	.	1	+	.	.	52	0.8	(+-3)
Sinapis arvensis	.	.	1	.	.	3	4	+	.	1	3	4	.	1	3	+	.	.	.	.	.	.	.	43	1.5	(+-4)
Euphorbia helioscopia	.	.	.	.	.	2	.	.	.	2	2	2	.	+	1	.	.	.	.	.	.	.	.	26	0.4	(+-2)
Avena fatua	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	1	.	.	.	.	.	9	0.2	(1-3)
Stellarietea																										
Viola arvensis	2	+	.	2	2	2	1	.	1	3	2	2	2	1	2	.	4	3	3	4	3	2	2	87	2.5	(+-4)
Fallopia convolvulus	+	1	2	.	.	4	3	1	2	1	3	2	1	3	2	.	3	4	.	4	4	3	2	83	3.1	(+-4)
Stellaria media	3	.	5	.	2	5	5	5	3	1	2	3	5	4	2	4	.	2	.	.	3	.	1	74	6.3	(1-5)
Anagallis arvensis	1	.	+	4	2	.	.	2	+	2	.	2	3	+	.	.	2	3	.	3	1	1	.	65	1.5	(+-4)
Chenopodium album	.	.	2	1	2	4	1	.	+	.	2	2	2	2	2	.	2	3	.	.	.	.	.	57	1.4	(+-4)
Polygonum aviculare	.	.	.	.	.	4	2	2	2	.	4	2	3	4	1	2	4	3	.	.	.	.	.	52	2.5	(1-4)
Vicia angustifolia	.	.	1	4	3	.	.	.	.	.	+	1	2	.	.	1	.	.	5	3	3	2	3	52	2.2	(+-5)
Tripleurosp. perforatum	3	.	.	1	3	.	.	1	.	.	.	.	1	1	.	.	.	4	.	.	3	3	.	39	1.2	(1-4)
Capsella bursa-pastoris	+	.	.	.	2	.	.	.	.	.	.	1	.	2	2	.	.	.	.	2	2	2	1	39	0.6	(+-2)
Veronica persica	.	.	.	.	1	2	1	.	.	2	4	.	.	.	.	3	.	1	.	.	.	.	.	30	0.8	(1-4)
Agrostemma githago	.	.	.	.	.	1	.	4	+	.	.	.	.	.	.	.	.	1	.	.	.	.	.	17	0.5	(+-4)
Persicaria lapathif.*	.	.	.	.	.	.	.	.	.	.	.	1	2	3	.	.	1	.	.	.	.	.	.	17	0.3	(1-3)
Atriplex patula	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	2	4	.	.	.	.	.	13	0.6	(2-4)
Thlaspi arvense	.	.	.	.	.	.	3	.	.	.	.	.	.	.	3	.	.	3	.	.	.	.	.	13	0.5	(3)
Vicia sativa	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	1	2	13	0.2	(1-2)
Lamium purpureum	.	.	.	.	.	.	1	.	.	.	.	.	.	.	4	.	.	.	.	.	.	.	.	9	0.5	(1-4)
Odontites vernus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	3	9	0.2	(1-3)
Companions																										
A *Sonchus arvensis*	+	.	2	.	.	4	4	5	4	2	3	3	3	6	2	5	3	3	.	3	2	.	.	74	5.7	(+-6)

Tab. 6. – cont.

Cirsium arvense	.	.	1	1	3	6	5	6	.	2	4	3	5	4	2	5	4	.	.	.	.	.	4	65	7.5	(1-6)
Elytrigia repens	.	.	.	.	2	3	3	2	2	4	3	.	.	3	2	3	.	4	.	.	.	3	.	52	2.3	(2-4)
Convolvulus arvensis	.	.	.	.	.	.	.	.	.	.	3	3	.	.	.	.	4	.	.	2	.	.	3	22	1.0	(2-4)
B *Linaria vulgaris*	.	.	.	+	.	1	.	2	2	.	.	.	.	1	1	2	4	.	1	.	.	.	4	43	1.2	(+-4)
Echium vulgare	.	.	.	.	.	.	.	2	1	.	.	.	.	.	.	.	+	.	.	.	.	.	.	13	0.1	(+-2)
C *Galeopsis tetrahit*	.	2	4	2	3	4	3	3	5	.	3	2	1	3	4	5	3	4	3	4	4	6	3	91	7.3	(1-6)
Galeopsis bifida	2	1	3	1	3	5	3	4	4	.	.	.	.	2	.	4	4	.	5	2	1	2	.	70	4.4	(1-5)
Galium aparine	.	.	3	.	+	3	2	3	2	.	3	4	3	3	3	3	.	4	.	.	3	.	.	61	2.6	(+-4)
Lapsana communis	.	.	2	.	.	4	1	3	3	1	1	.	.	1	4	2	.	4	.	.	3	.	.	52	2.1	(1-4)
Vicia sepium	2	.	1	.	.	2	1	3	.	3	2	1	.	2	.	4	.	.	.	.	.	.	.	43	1.2	(1-4)
Silene alba*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	2	.	.	.	.	.	.	9	0.1	(1-2)
D *Polygonum arenastrum*	.	.	.	1	2	.	.	.	.	2	1	.	1	.	.	.	.	.	.	2	1	2	.	35	0.4	(1-2)
Poa annua	.	1	1	.	.	.	.	.	.	1	.	1	1	.	.	2	.	.	.	.	.	.	.	26	0.2	(1-2)
Plantago major*	.	.	.	.	.	.	+	1	.	.	.	.	.	.	.	.	.	2	.	1	.	.	.	17	0.1	(+-2)
Spergularia rubra	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	9	0.1	(1-2)
E *Mentha arvensis*	3	.	4	.	1	4	3	4	4	5	4	4	5	4	2	5	.	4	2	.	.	.	3	74	6.8	(1-5)
Persicaria hydropip.	2	2	3	.	.	3	1	1	3	3	2	4	4	3	.	3	.	.	3	3	4	.	.	70	3.0	(1-4)
Ranunculus repens	2	.	4	.	.	1	4	4	2	1	.	2	1	2	2	2	.	2	.	1	2	2	.	70	2.2	(1-4)
Stachys palustris	.	.	3	.	.	6	3	3	4	3	5	3	4	5	2	4	2	4	1	.	.	.	.	65	5.8	(1-6)
Trifolium repens	.	.	2	2	2	2	1	2	.	2	.	.	3	.	.	3	.	1	.	2	3	2	1	61	1.3	(1-3)
Tussilago farfara	.	3	.	.	.	5	6	5	.	6	6	5	.	2	3	4	.	.	.	.	.	.	.	43	6.5	(2-6)
Equisetum arvense	.	.	4	.	.	4	4	4	1	.	3	5	.	.	2	1	.	.	.	.	.	.	.	39	2.9	(1-5)
Potentilla anserine	1	.	2	.	.	5	4	.	.	7	4	5	3	.	.	.	.	.	.	.	.	.	.	35	4.6	(1-7)
Agrostis stolonifera	.	.	2	.	.	.	2	1	3	.	.	.	.	.	.	4	5	.	.	4	.	.	1	35	2.1	(1-5)
Rumex crispus	.	.	1	.	.	.	.	1	.	.	2	2	.	.	1	3	1	3	.	.	.	.	.	35	0.6	(1-3)
Trifolium hybridum	.	.	1	.	.	.	.	.	.	2	.	.	+	.	1	2	.	.	.	.	2	.	.	26	0.3	(+-2)
Veronica serpyllif.*	.	.	.	.	.	.	.	5	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9	1.0	(2-5)
F *Filaginella uliginosa*	2	1	2	.	1	.	.	.	.	1	.	.	2	1	.	.	.	.	.	2	2	.	.	39	0.5	(1-2)
Plantago uliginosa	1	.	.	.	1	.	.	.	.	.	2	.	2	1	.	.	.	.	1	.	.	.	.	26	0.3	(1-2)
Gypsophila muralis	.	.	.	+	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9	0.2	(+-3)

Tab. 6. – cont.

G *Achillea millef.*agg	3	3	3	3	3	2	1	4	3	3	.	2	2	2	.	4	5	5	4	2	2	4	1	91	5.3	(1-5)
Stellaria graminea	1	1	1	2	1	.	.	.	.	.	.	.	+	1	1	.	3	2	.	2	1	1	2	61	0.7	(+-3)
Prunella vulgaris	2	3	1	.	.	.	.	4	2	2	.	.	.	2	2	1	.	.	3	2	.	1	.	52	1.4	(1-4)
Cerastium holosteo	2	.	1	1	.	.	.	3	.	.	+	1	.	1	.	.	.	.	.	2	2	1	.	43	0.5	(+-3)
Agrostis capillaries*	3	3	2	4	.	.	.	.	.	4	.	3	2	1	.	.	.	.	.	.	.	.	.	35	1.6	(1-4)
Lathyrus pratensis	2	.	1	.	.	2	.	2	.	2	2	2	.	.	.	3	.	.	.	.	.	.	.	35	0.7	(1-3)
Hypericum maculatum	2	2	.	.	.	.	.	+	+	.	.	.	.	.	.	+	.	.	2	1	.	.	+	35	0.3	(+-2)
Vicia cracca	+	.	1	.	.	+	.	.	.	2	.	.	.	.	1	1	.	1	.	.	.	2	.	35	0.3	(+-2)
Taraxacum Ruderalia*	1	.	.	.	.	.	1	+	1	.	1	.	1	.	.	1	.	.	.	.	.	1	.	35	0.2	(+-1)
Viola polychrome*	.	3	.	.	.	+	1	2	3	.	.	.	.	.	1	.	.	.	.	.	.	.	.	26	0.5	(+-3)
Plantago lanceolata	+	.	.	+	.	.	.	.	.	.	.	.	+	.	.	1	.	.	.	2	.	.	.	22	0.1	(+-2)
Hypochoeris radicata	.	1	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	1	.	4	.	.	17	0.6	(1-4)
Potentilla erecta	2	4	1	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	17	0.6	(1-4)
Agrostis gigantea	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	1	.	.	3	.	.	13	0.4	(1-3)
Phleum pratense	.	2	.	.	.	1	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	13	0.3	(1-3)
Trifolium dubium	.	.	.	.	.	.	.	.	.	1	.	.	1	.	.	.	.	.	.	.	.	2	.	13	0.1	(1-2)
Crepis capillaris	.	1	.	.	+	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	13	0.1	(+-1)
Festuca pratensis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	1	.	9	0.2	(1-3)
Leucanthemum vulgare	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	2	.	.	.	9	0.1	(1-2)
Anthoxantum odoratum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	+	.	9	0.1	(+-2)
Trifolium pratense*	.	.	.	.	1	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	9	0.1	(1)
Campanula patula	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	+	9	0.1	(+-1)
Carex hirta	.	.	+	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	9	0.1	(+)
Lotus corniculatus	.	.	.	+	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	9	0.1	(+)
H *Knautia* arvensis*	+	3	.	.	.	.	.	2	2	.	.	.	+	.	1	.	.	.	.	.	.	.	.	26	0.4	(+-3)
Trifolium flexuosum	1	.	+	.	.	.	.	.	.	+	.	.	+	.	1	.	.	.	.	.	.	.	.	22	0.1	(+-1)
Poa compressa*	.	.	.	3	1	.	.	.	.	.	.	.	1	.	.	.	5	.	.	.	.	.	.	17	1.1	(1-5)
Trifolium arvense	.	.	.	1	2	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	13	0.1	(1-2)
Silene vulgaris*	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	9	0.1	(1-2)
I *Equisetum sylvaticum*	.	.	2	.	.	5	7	.	.	4	3	.	.	3	.	.	.	.	.	.	.	.	.	26	3.5	(2-7)

Tab. 6. – cont.

Salix sp. Juv	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	.	.	.	.	.	9	0.1	(+)
Relics of crops																										
Solanum tuberosum	.	.	.	.	.	2	.	3	3	.	.	.	2	.	.	.	.	.	.	3	2	3	.	30	1.0	(2-3)
Avena sativa	.	2	+	.	.	.	.	.	.	.	1	1	.	.	1	.	.	.	.	.	.	.	.	22	0.2	(+-2)

In one relevé only: *Apera spica-venti* (5:4), *Arenaria serpyllifolia* (5:1), *Bromus secalinus* (8:1), *Cerastium glomeratum* (15:2), *Chaerophyllum aromaticum* (15:+), *Cichorium intybus* (16: 1), *Colymbada scabiosa* (17:+), *Cynosurus cristatus* (22:+), *Daucus carota* (17:1), *Equisetum telmateia* (11:6), *Erysimum cheiranthoides* (6:1), *Euphorbia cyparissias* (4:2), *E.* esula* (17: 1), *E. stricta* (8:2), *Festuca rubra* agg. (4:4), *Galeopsis pubescens* (19:2), *Geranium pusillum* (5:1), *Gladiolus imbricatus* (16:+), *Holcus mollis* (10:3), *Hypericum perforatum* (9:1), *Logfia arvensis* (4:3), *Luzula* sp. juv. (20:1), *Lysimachia vulgaris* (12: 3), *Myosotis stricta* (23:2), *Pilosella officinarum* (20:2), *Pimpinella saxifraga* (1:1), *Pisum* arvense* (13:1), *Potentilla argentea* (4:+), *Ranunculus arvensis* (18:4), *Rorippa sylvestris* (18:2), *Rubus* subgen. *Rubus* (16:1), *Rumex* obtusifolius* (21:3), *Sagina procumbens* (1:1), *Salvia verticillata* (17:1), *Setaria viridis* (17:2), *Sonchus asper* (11:1), *Symphytum officinale* (14: 4), *Trifolium campestre* (18:3), *Urtica dioica* (14:+), *Veronica chamaedrys* (22:+), *Vicia glabrescens* (18:3), *V. villosa* (23:2), *Viola* tricolor* (22:4), *Xanthoxalis stricta* (18:2).

Localities of relevés: 1. Námestovo, 1.8 km SE, on the slopes of Magura Mts. above the crossroads (6682b), 24.8.1966; 2. Oravská Lesná, ca. 2 km W, above the left side of the road to the village Jasenovská (6681a), 25.8.1966; 3. Trstená, ca. 3.5 km NNE, on new reclaimed fields called "Nové diely" (6683b), 26.8.1966; 4. Budiná, 0.5 km NW, on slopes of the Jaseňový vrch Hill (7582b), 9.7.1967; 5. Budiná, 0.8 km SE, on the right side of the road to Tuhár (7582d), 9.7.1967; 6 to 9. Oravská Polhora - local settlement Slaná Voda (see also Kúpele Polhora), small private fields on the same ecotope (6482d), 12.7.1971; 10. Trstená, 0.5 km S of the SW margin of settlement (6683b), 23.8.1966; 11. Hámričky (small settlement SSW of Trstená), 0.5 km NNE (6683d), 23.8.1966; 12. Trstená, ca. 0.7 km SW, above the left bank of the small river Oravica (6683d), 23.8.1966; 13. Námestovo, 1.5 km S, on NW slopes of Magura Mts. (6682b), 24.8.1966; 14. Ibid., only somewhat higher up the slope (6682b), 24.8.1966; 15. Krušetnica, 1 km NWW on the left side of the road to Zákamenné (6681b), 25.8.1966; 16. Nová Bystrica, E of the village, 0.2 km of the crossroad to Riečnica, above the left bank of small river Harvelka (6680c), 11.7.1971; 17. Vel ká Lehota (7 km NW of Nová Baňa), 1.5 km S on the left side of the road to Stará Huta (7577a), 25.7.1973; 18. Banská Štiavnica, EEN margin of the town, ca. 150 m of SW foot of the sacred hill (7579a), 25.7.1973; 19. Mláky (7 km NE of Detvianska Huta), 250 m NW of the village margin (7484a), 23.7.1973; 20. Látky (small settlement EEN of Detvianska Huta), ca. 1 km NNE (7483b), 1.7.1974; 21. Ibid., only somewhat higher up the slope (7483b), 1.7.1974; 22. Látky, ca. 1 km SW on the right side of the road to Detvianska Huta (7483b), 1.7.1974; 23. Detvianska Huta, small fields near the NE margin of the village (7483b), 1.7.1974.

Tab. 7. *Holco-Galeopsietum tetrahit* Hilbig .

Relevé no.	1	2	3	4	5	6	7	C	CV	S
Altitude (m)	700	720	730	690	710	755	755			
Aspect	E	E	E	E	E	-	-			
Slope (degrees)	15	20	20	5	5	0	0			
Crop	LGs	P	O	R(c)	R	LGs	LGs			
Height of stand (cm)	80	50	50	150	170	80	90			
Total cover (%)	95	90	80	100	95	100	100			
Crop cover (%)	70	60	50	75	60	60	70			
Weed cover (%)	60	50	45	40	60	70	60			
Number of species	31	24	24	30	27	49	44			
D Ass.										
Holcus mollis	3	4	3	4	2	+	2	100	4.6	(+-4)
Galeopsis tetrahit	3	3	4	3	3	4	1	100	5.2	(1-4)
Achillea millefolium	4	4	4	4	3	3	3	100	7.4	(3-4)
Diff. var. agg.										
Gladiolus imbricatus	.	.	.	.	1	+	4	43	1.5	(+-4)
Scleranthion										
Anthemis arvensis	5	2	4	3	6	4	4	100	12.3	(2-6)
Scleranthus annuus	4	5	2	5	2	4	3	100	9.7	(2-5)
Veronica arvensis	1	.	.	2	.	.	.	29	0.4	(1-2)
Atriplici-Chenopodietalia										
Raphanus raphanistrum	4	5	5	4	3	5	6	100	16.3	(3-6)
Spergula arvensis	4	2	1	2	4	4	2	100	5.2	(1-4)
Acetosella vulgaris	4	2	5	3	4	.	4	86	8.0	(2-5)
Myosotis arvensis	3	2	.	3	3	4	2	86	3.7	(2-4)
Persicaria maculosa	3	3	1	3	.	2	1	86	2.1	(1-3)
Vicia hirsute	2	.	.	.	.	4	4	43	3.1	(2-4)
Persicaria pallida*	.	.	.	.	1	2	1	43	0.4	(1-2)
Centaurea cyanus	.	.	.	.	.	3	3	29	1.1	(3)
Stellarietea										
Stellaria media	5	3	1	4	3	5	4	100	9.8	(1-5)
Viola arvensis	2	.	1	2	4	1	.	71	2.1	(1-4)
Fallopia convolvulus	4	.	.	.	3	2	1	57	2.4	(1-4)
Agrostemma githago	.	.	1	.	.	6	4	43	5.8	(1-6)
Capsella bursa-pastoris	.	.	.	3	1	+	.	43	0.7	(+-3)
Bromus secalinus	.	.	.	.	.	6	3	29	4.9	(3-6)
Polygonum aviculare	.	.	.	.	.	2	2	29	0.6	(2)
Chenopodium album	.	.	.	.	.	1	+	29	0.1	(+-1)
Companions										
A *Sonchus arvensis*	.	2	.	.	2	4	4	43	3.4	(2-4)
Elytrigia repens	.	.	.	.	.	4	4	29	2.9	(4)
Cirsium arvense	.	.	.	.	.	3	1	29	0.6	(1-3)
C *Galeopsis bifida*	3	1	3	2	5	.	+	86	4.4	(+-5)
Lapsana communis	3	.	.	1	5	1	3	71	4.1	(1-5)

Tab. 7. - cont .

Galium aparine	.	.	.	.	.	3	3	29	1.1	(3)
Vicia sepium	.	.	.	.	.	3	1	29	0.6	(1-3)
Silene alba*	.	.	.	.	.	2	1	29	0.4	(1-2)
Rumex obtusifolius*	1	.	.	.	.	1	.	29	0.1	(1)
D *Poa annua*	4	.	.	.	2	.	3	43	2.3	(2-4)
Plantago major*	1	.	.	1	.	.	.	29	0.1	(1)
E *Ranunculus repens*	3	2	3	1	2	3	4	100	3.8	(1-4)
Mentha arvensis	4	.	.	2	4	4	4	71	6.0	(2-4)
Stachys palustris	.	5	.	.	2	3	2	57	4.0	(2-5)
Tussilago farfara	.	.	.	.	.	4	5	29	4.3	(4-5)
Equisetum arvense	.	.	.	.	.	4	4	29	2.9	(4)
Potentilla anserine	.	.	.	.	.	4	4	29	2.9	(4)
Rumex crispus	.	.	.	.	.	2	3	29	0.9	(2-3)
Agrostis stolonifera	.	.	.	3	1	.	.	29	0.6	(1-3)
F *Persicaria hydropiper*	5	2	2	4	2	3	4	100	7.1	(2-5)
G *Stellaria graminea*	1	+	3	.	.	1	.	57	0.7	(+-3)
Cerastium holosteoides	.	.	2	2	1	.	.	43	0.6	(1-2)
Leucanthemum vulgare	.	.	2	2	.	.	.	29	0.6	(2)
Lathyrus pratensis	.	.	.	.	.	1	2	29	0.4	(1-2)
I *Equisetum sylvaticum*	.	1	.	.	2	2	4	57	2.1	(1-4)
Lythrum salicaria	.	.	.	.	.	5	2	29	3.1	(2-5)
Lysimachia vulgaris	.	.	.	.	.	4	4	29	2.9	(4)
Relics of crops										
Solanum tuberosum	3	.	.	1	2	3	+	71	1.5	(+-3)
Secale cereale	3	.	3	.	.	.	.	29	1.1	(3)

In one relevé only: *Aegopodium podagraria* (1:3, *Agrostis gigantea* (1:1), *Alchemilla* ser. *Alchemilla* (6:+), *Anagallis arvensis* (4: 2), *Anthoxantum odoratum* (4:1), *Avena sativa* (2:1), *Erysimum cheiranthoides* (4:1), *Euphorbia cyparissias* (2:+), *E. helioscopia* (6:3), *Filaginella uliginosa* (1:1), *Galeopsis pubescens* (1:4), *Hylotelephium maximum* (1:+), *Hypericum maculatum* (3:1), *Jacea pratensis* (4:+), *Knautia* arvensis* (2:2), *Medicago lupulina* (6: +), *Phleum pratense* (3:1), *Plantago lanceolata* (3:+), *Poa trivialis* (7:2), *Pteridium aquilinum* (2:+), *Rubus* subg. *Rubus* (2: 2), *Thlaspi arvense* (6:1), *Trifolium hybridum* (7:4), *T. repens* (3:2), *Veronica persica* (6:2), *V.* serpyllifolia* (4:+), *Vicia cracca* (6:2).

Localities of relevés: Group of relevés 1 to 5 represents one macrolocality with relevés dispersed one from another only several hundred metres and individual relevés differ by particulars stated in the header (see above); this is the location: Vrch Predmier (also Vrch Predmier), ca. 10 km NW of Turzovka, local dispersed settlements such as Chylíkovci, Háferovia, Matejkovci, etc. (6577a), enerally it is a valley SE of the Súlov Mt. (903 m); rel. to 4 were recorded 10.7.1971, rel. 5 was recorded 7.7.1981 not ar from the rel. 1. - Rel. 6 and 7: Vitanová (8 km E of Trstená), 1.2 km NNE on the right side of the road to Hladovka (rel.6) and the same opposite on the left side of the road (rel.7), 13.7.1971 (6684a).

Tab. 8. *Stachyo annuae-Setarietum pumilae* Felföldy 1942 corr. Mucina 1993.

Relevé no.	1	2	3	4	5	6	7	8	9	C	CV	S
Altitude (m)	245	230	210	170	270	108	240	290	240			
Aspect	SW	SSW	S	SW	SE	-	SW	SW	-			
Slope (degrees)	15	20	20	5	15	0	20	15	0			
Crop	s(Ww)	s(Bs)	Ff L+	C(s)	s(Bs)	s(Ww)	s(Ww)	s(Bs)	s(Ww)			
Height of stand (cm)	20	10	25	30	15	20	10	15	20			
Total cover (%)	80	60	70	95	60	70	60	70	70			
Crop cover (%)	-	-	-	55	-	-	-	-	-			
Weed cover (%)	80	60	70	70	60	70	60	70	70			
Number of species	41	44	37	37	44	33	33	43	44			
D Ass.												
Stachys annua	6	5	4	7	3	1	5	5	1	100	16.1	(1-7)
Euphorbia falcate	4	4	2	.	3	4	3	4	3	89	6.0	(2-4)
Setaria pumila	3	.	.	5	2	5	3	4	5	78	8.9	(2-5)
Anagallis foemina	5	4	3	.	4	4	4	2	.	78	7.3	(2-5)
Kickxia elatine	.	3	.	4	2	5	1	2	4	78	5.4	(1-5)
Kickxia spuria	5	2	2	2	3	.	.	4	3	78	4.9	(2-5)
Ajuga chamaepitys	1	4	.	3	.	.	5	.	.	44	3.8	(1-5)
Diff. var.												
Chenopodium polyspermum	.	.	.	.	.	.	.	3	2	22	0.7	(2-3)
Xanthoxalis stricta	.	.	.	.	.	.	.	2	2	22	0.4	(2)
Fumario-Euphorbion et Caucalidion transgr.												
Euphorbia exigua	5	5	.	4	5	4	4	5	3	89	12.7	(3-5)
Lathyrus tuberosus	2	1	5	.	5	3	4	4	2	89	7.6	(1-5)
Consolida regalis*	5	3	.	3	1	.	5	4	4	78	7.6	(1-5)
Silene noctiflora	3	1	.	.	4	3	1	3	4	78	3.7	(1-4)
Veronica polita	1	2	4	.	3	.	.	2	2	67	2.3	(1-4)
Microrrhinum minus	1	2	1	.	.	1	.	.	.	44	0.4	(1-2)
Aethusa agrestis*	.	+	.	.	.	.	.	5	5	33	4.5	(+-5)
Solanum nigrum	.	2	2	.	.	.	2	.	.	33	0.7	(2)
Sonchus oleraceus	.	+	.	+	+	.	.	.	.	33	0.1	(+)
Galeopsis angustifolia	3	.	.	.	.	.	.	1	.	22	0.5	(1-3)
Euphorbia helioscopia	.	.	3	.	.	.	.	1	.	22	0.5	(1-3)
Euphorbia platyphyllos*	.	.	.	.	.	2	.	.	+	22	0.2	(+-2)
Caucalis platycarpos*	.	2	.	.	+	.	.	.	.	22	0.2	(+-2)
Thymelaea passerine	.	1	.	1	.	.	.	.	.	22	0.1	(1)
Centaureetalia												
Polygonum rurivagum	3	.	1	2	2	3	4	4	4	89	4.7	(1-4)
Medicago lupulina	4	4	3	2	4	.	3	.	.	67	4.4	(2-4)
Sinapis arvensis	2	1	.	.	2	3	2	.	1	67	1.2	(1-3)
Avena fatua	2	.	.	+	4	1	.	.	2	56	1.6	(+-4)
Sherardia arvensis	1	2	.	.	1	.	.	1	3	56	0.8	(1-3)
Papaver rhoeas	2	.	.	.	1	.	1	1	2	56	0.6	(1-2)
Melampyrum arvense	.	.	1	+	.	.	.	.	.	22	0.1	(+-1)

Tab. 8. - cont.

Atriplici-Chenopodietalia												
Persicaria maculosa	.	2	.	.	2	.	2	.	5	44	2.9	(2-5)
Setaria viridis	.	.	5	3	.	1	.	.	.	33	2.7	(1-5)
Raphanus raphanistrum	1	+	.	.	+	.	.	.	.	33	0.1	(+-1)
Echinochloa crus-galli	.	.	.	.	.	+	.	.	4	22	1.1	(+-4)
Misopates orontium	.	.	.	+	3	.	.	.	.	22	0.5	(+-3)
Persicaria pallida*	1	.	.	1	.	.	.	.	.	22	0.1	(1)
Centaurea cyanus	.	.	.	+	1	.	.	.	.	22	0.1	(+-1)
Sisymbrietalia												
Conyza canadensis	2	.	4	.	.	.	.	3	.	33	1.8	(2-4)
Atriplex oblongifolia	.	.	.	.	.	.	+	1	+	33	0.1	(+-1)
Lactuca serriola	+	.	+	.	.	.	.	.	.	22	0.1	(+)
Stellarietea												
Fallopia convolvulus	4	2	3	+	3	.	4	3	3	89	4.2	(+-4)
Anagallis arvensis	4	3	3	.	4	4	4	3	.	78	5.8	(3-4)
Tripleurospermum perf.	2	.	.	2	4	5	2	3	4	78	5.6	(2-5)
Sonchus asper	1	1	.	1	2	2	3	.	4	78	2.2	(1-4)
Veronica persica	4	1	4	.	3	.	.	3	3	67	3.6	(1-4)
Stellaria media	4	1	.	.	4	.	2	2	.	56	2.7	(1-4)
Viola arvensis	4	2	.	.	3	.	3	1	.	56	2.3	(1-4)
Erodium cicutarium	2	3	1	.	2	.	.	.	.	44	0.9	(1-3)
Capsella bursa-pastoris	.	2	3	1	1	.	.	.	.	44	0.8	(1-3)
Chenopodium album	.	.	1	.	.	.	1	1	2	44	0.4	(1-2)
Atriplex patula	.	.	.	+	2	.	1	.	.	44	0.3	(+-2)
Polygonum aviculare	1	.	4	3	.	.	.	.	.	33	1.6	(1-4)
Arenaria serpyllifolia	.	.	.	.	1	.	.	2	.	22	0.3	(1-2)
Galinsoga parviflora	.	.	.	.	.	.	.	+	1	22	0.1	(+-1)
Companions												
A *Convolvulus arvensis*	5	3	5	6	5	.	5	1	4	89	13.8	(1-6)
Cirsium arvense	4	.	.	.	2	3	4	.	3	56	3.3	(2-4)
Elytrigia repens	.	.	4	.	.	6	.	4	4	44	6.7	(4-6)
Sonchus arvensis	.	.	.	.	.	2	.	3	4	33	1.8	(2-4)
B *Daucus carota*	2	2	4	3	.	.	.	3	.	56	2.4	(2-4)
Cardaria draba	3	+	.	1	2	.	.	.	.	44	0.7	(+-3)
Linaria vulgaris	.	1	.	1	.	3	.	.	.	33	0.6	(1-3)
Cichorium intybus	.	.	.	+	.	1	.	+	.	33	0.1	(+-1)
Diplotaxis muralis	.	2	4	.	.	.	.	.	.	22	1.3	(2-4)
Carduus acanthoides	.	.	.	1	.	3	.	.	.	22	0.5	(1-3)
Cerinthe minor	2	.	.	.	.	+	.	.	.	22	0.2	(+-2)
Melilotus officinalis	.	.	1	.	1	.	.	.	.	22	0.1	(1)
D *Polygonum arenastrum*	4	.	.	.	2	4	.	2	1	56	2.7	(1-4)
Plantago major*	.	.	.	.	2	.	.	1	1	33	0.3	(1-2)
F *Plantago uliginosa*	.	2	.	.	1	2	.	3	4	56	2.1	(1-4)
G *Plantago lanceolata*	.	2	1	2	1	.	1	1	.	67	0.7	(1-2)

Tab. 8. - cont.

Taraxacum sect. *Ruder*	.	1	.	.	.	.	2	.	1	33	0.3	(1-2)
H *Falcaria vulgaris*	+	.	.	1	.	.	.	.	+	33	0.1	(+-1)
Salvia verticillata	.	.	3	.	.	.	.	2	.	22	0.7	(2-3)
Polycnemum arvense	.	2	.	.	.	.	1	.	.	22	0.2	(1-2)
Trifolium campestre	.	1	.	1	.	.	.	.	.	22	0.1	(1)
Relics of crops												
Triticum aestivum	5	.	.	.	.	4	1	.	4	44	4.5	(1-5)
Hordeum distichon	.	.	.	.	4	.	.	3	.	22	1.6	(3-4)

In one relevé only: *Anthemis arvensis* (2:+), *A. cotula* (5:+), *Artemisia vulgaris* (6:1), *Cephalaria transsilvanica* (3:1), *Chondrilla juncea* (4:1), *Echium vulgare* (4:+), *Equisetum arvense* (9:2), *Euphorbia waldsteinii* (4:4), *Fumaria officinalis* (3:3), *Galium spurium* (6:1), *Geranium dissectum* (9:+), *Hesiodia montana* (2:+), *Hylotelephium maximum* (3:+), *Lappula squarrosa* (3:1), *Linaria* angustata* (3:2), *Melampyrum barbatum* (7:2), *Myosotis arvensis* (2:1), *Nigella arvensis* (4:1), *Nonea pulla* (2:+), *Odontites vernus* (8:+), *Persicaria* lapathifolia* (7:2), *Picris* hieracioides* (3:2), *Ranunculus arvensis* (9:+), *R. sardous* (9:+), *Reseda lutea* (2:+), *Rumex crispus* (5:2), *Securigera varia* (8:1), *Senecio vulgaris* (3:3), *Silene dichotoma* (4:6), *S.* vulgaris* (6: 1), *Thlaspi arvense* (9:2), *Torilis arvensis* (3:2), *Verbena officinalis* (6:3), *Vicia angustifolia* (7:1).

Localities of relevés: 1. Vrbové (NWW of Piešťany), ca 3 km NW not far from the crossroad to Šípkové village (7372c), 1.8.1972; 2. Modrová (NE of Piešťany), 0.7 km SE on the left side of the road to Stará Lehota (7373c), 31.7.1972; 3. Turňa nad Bodvou, on a slope below the castle (7391c), 28.7.1972; 4. Dolné Semerovce (ca 8 km NW of Šahy), 0.8 km SE of the village (7879c), 10.9.1963; 5. Chtelnica (15 km SWW of Piešťany), ca 2 km SW on SE slopes of Plešivá hora Hill (7471b), 1.8.1972; 6. Martovce (N of Komárno), ca 2 km SSE not far from the left bank of Nitra River (8174d), 2.10.1989; 7. Bajtava (7 km NNE of Štúrovo), ca 0.5 km SE of the village (8178b), 30.7.1972; 8. Hrušov (11 km SE of Rožňava), 0.8 km N of the village (7489b), 27.7.1972; 9. Ibid., 0.5 km NW of the village, above the left bank of Vápenný Brook (7489b), 27.7.1972.

Tab. 9. *Hibisco-Eragrostietum* Soó et Timár in Timár.

Relevé no.	1	2	3	4	5	6	7	8	9	C	CV	S
Altitude (m)	135	190	120	113	115	114	112	110	108			
Aspect	-	SSW	-	-	-	-	-	-	-			
Slope (degrees)	0	20	0	0	0	0	0	0	0			
Crop	RP	SM	M	M	T	So	T	T	M			
Height of stand (cm)	40	15	150	180	180	100	190	180	190			
Total cover (%)	80	95	95	90	80	70	80	80	90			
Crop cover (%)	30	30	75	80	70	50	70	50	70			
Weed cover (%)	70	70	55	35	40	30	30	50	60			
Number of species	21	22	23	22	19	21	24	30	26			
Hibiscus trionum	4	4	3	+	6	+	1	2	4	100	7.4	(+-6)
Eragrostietalia												
Portulaca oleracea	3	1	2	4	2	1	1	2	.	89	2.4	(1-4)
Amaranthus albus	1	.	.	.	2	1	.	2	.	44	0.6	(1-2)
Phelipanche ramose	.	.	.	.	5	.	5	4	.	33	5.6	(4-5)
Digitaria sanguinalis	.	5	.	5	.	.	.	1	.	33	4.5	(1-5)
Heliotropium europaeum	.	.	4	.	1	.	1	.	.	33	1.2	(1-4)
Centaureetalia et Atriplici-Chenopodietalia												
Chenopodium hybridum	.	2	3	1	3	3	2	3	+	89	2.3	(+-3)
Setaria pumila	6	5	.	2	.	2	.	2	4	67	7.3	(2-6)
Stachys annua	3	.	.	.	2	.	.	1	2	44	0.9	(1-3)
Sinapis arvensis	.	.	1	.	.	2	.	.	2	33	0.5	(1-2)
Chenopodium polyspermum		2	.	.	.	.	.	.	.	22	0.7	(2-3)
Setaria viridis	2	3	.	.	.	.	.	.	.	22	0.7	(2-3)
Veronica polita	+	.	.	.	.	.	.	3	.	22	0.5	(+-3)
Papaver rhoeas	.	.	.	.	.	1	.	2	.	22	0.3	(1-2)
Raphanus raphanistrum	.	.	.	1	.	.	.	1	.	22	0.1	(1)
Sisymbrietalia												
Chenopodium strictum	.	.	.	2	.	.	3	3	.	33	1.1	(2-3)
Conyza canadensis	.	1	.	2	.	.	.	2	.	33	0.5	(1-2)
Malva pusilla	1	.	.	.	1	.	2	.	.	33	0.3	(1-2)
Malva neglecta	3	.	.	.	.	.	3	.	.	22	0.9	(3)
Lactuca serriola	.	+	1	.	.	.	.	.	.	22	0.1	(+-1)
Anthemis cotula	.	.	.	.	.	+	+	.	.	22	0.1	(+)
Stellarietea												
Chenopodium album	3	4	5	2	2	4	4	5	4	100	9.8	(2-5)
Amaranthus retroflexus	5	4	3	3	1	1	4	5	3	100	8.1	(1-5)
Echinochloa crus-galli	3	7	6	4	2	3	.	3	6	89	13.8	(2-7)
Amaranthus powellii	4	.	5	.	2	4	3	3	4	78	6.7	(2-5)
Fallopia convolvulus	2	1	3	1	1	1	.	.	2	78	1.1	(1-3)
Galinsoga parviflora	7	.	.	2	1	1	1	.	.	56	4.8	(1-7)
Solanum nigrum	.	2	.	.	1	1	2	.	3	56	1.0	(1-3)
Capsella bursa-pastoris	.	1	1	.	.	+	1	3	.	56	0.6	(+-3)
Tripleurospermum perf.	.	+	.	.	.	1	1	2	2	56	0.6	(+-2)

Tab. 9. - cont.

Erodium cicutarium	.	3	1	2	.	.	2	.	.	44	0.9	(1-3)
Lamium amplexicaule	.	.	1	1	.	.	1	2	.	44	0.4	(1-2)
Lamium purpureum	2	1	.	.	1	.	.	.	1	44	0.4	(1-2)
Sonchus oleraceus	2	.	1	+	1	.	.	.	.	44	0.3	(+-2)
Persicaria lapathifolia*	4	.	.	.	.	.	.	1	2	33	1.4	(1-4)
Stellaria media	.	.	3	.	.	.	.	1	2	33	0.7	(1-3)
Sonchus asper	.	2	.	.	.	.	.	2	+	33	0.5	(+-2)
Thlaspi arvense	.	.	.	.	1	.	1	.	1	33	0.2	(1)
Veronica persica	.	.	2	.	.	.	.	1	.	22	0.3	(1-2)
Anagallis arvensis	.	.	2	.	.	.	.	.	+	22	0.2	(+-2)
Companions												
A *Convolvulus arvensis*	3	5	2	3	.	4	.	3	4	78	6.0	(2-5)
Elytrigia repens	.	.	3	3	.	.	.	.	.	22	0.9	(3)
Cirsium arvense	.	.	.	.	.	.	1	.	2	22	0.3	(1-2)
B *Datura stramonium*	.	.	.	.	3	1	2	.	.	33	0.7	(1-3)
Artemisia vulgaris	.	.	.	.	.	.	+	.	+	22	0.1	(+)

In one relevé only: *Ajuga chamaepitys* (9:1), *Amaranthus blitoides* (3:1), *Anthemis ruthenica* (4:1), *Arenaria serpyllifolia* (4:+), *Atriplex patula* (7:1), *Avena fatua* (9:2), *Cardaria draba* (9:+), *Chenopodium ficifolium* (8:1), *Daucus carota* (2:1), *Eragrostis minor* (8:1), *Helianthus annuus* (6:2), *Iva xanthiifolia* (6:4), *Kickxia spuria* (2:1), *Matricaria recutita* (7:1), *Medicago lupulina* (4:1), *Misopates orontium* (1:1), *Panicum miliaceum* subsp. *ruderale* (9:7), *Polygonum rurivagum* (3:2), *Reseda lutea* (3:3), *Salsola kali* subsp. *ruthenica* (4:2), *Setaria verticillata* (8:3), *Silene noctiflora* (8:1), *Sorghum halepense* (9:4), *Taraxacum* sect. *Ruderalia* (8:+).

Localities of relevés: 1. Horné Turovce (N of Šahy), 0.5 km S of the village margin, alluvion of the left riverside of Krupinica (7879d), 6.9. 1963; 2. Sazdice (11 km W of Šahy), 0.2 km NWW of the upper village margin (7978b), 9.9.1963; 3. Nové Zámky, NNW town margin, on the left side of the road to Nitra (7974d), 27.6.1980; 4. Nesvady, 1.3 km NNE on the right side of the road to Nové Zámky (8074d), 4.7.1981; 5. Bajč, lonely settlement N. Diel (2 km E of Bajč), near to the crossroads (8075c), 29.9.1989; 6. Nové Zámky, S town margin, on the left side of the road to Nesvady (8075a), 30.9. 1989; 7. Aňala (small village SW of N. Zámky), NW village margin (8074b), 30.9.1989; 8. Imel , 0.3 km S of village margin on the left side of the road to Komárno (8174b), 30.9.1989; 9. Ďulov Dvor (small settlement NE of Komárno), on the right side of the road to Komárno (8274b), 2.10.1989.

Tab. 10. Synoptic table of selected *Caucalidion* communities (1).

Syntaxon no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Number of relevés	137	48	30	28	56	58	9	39	10	39	12	46	52	18	11	7	90	20	29	8
Average number of species	38	27	32	36	29	35	29	-	47	38	36	32	-	-	29	35	23	40	29	34
Turgenia latifolia	**8**	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.
Adonis flammea	**12**	8	7	.	.	.	.	+	.	.	.	.	.	.	.	.	.	10	(24)	.
Lathyrus aphaca	10	.	.	.	**80**	.	.	.	.	.	58	.	.	.	.	.	.	.	.	.
Scandix pecten-veneris	14	.	.	.	+	3	**89**	50	50	8	.	.	+	.	.	.	.	.	.	.
Legousia speculum-veneris	15	19	7	.	**64**	5	+	(30)	.	5	.	.	.	.	.	.	.	.	.	.
Alopecurus myosuroides	37	.	7	.	16	**52**	+	.	.	.	.	.	.	.	.	.	.	+	.	.
Kickxia elatine	.	+	13	.	27	**40**	+	(10)	.	.	.	.	.	.	.	+	4	.	.	.
Kickxia spuria	6	6	.	18	41	**79**	.	.	.	10	33	+	.	.	55	+	.	.	.	.
Bupleurum rotundifolium	8	17	**27**	7	.	.	+	(10)	.	+	+	.	.	.	.	.	.	.	.	.
Bifora radians	2	29	**57**	32	.	.	.	.	.	+	+	+	.	.	.	.	.	.	.	.
Conringia orientalis	22	4	13	**71**	+	.	.	50	30	.	50	+	+	.	.	.	.	.	.	.
Euphorbia falcata	.	44	37	36	.	.	.	.	.	.	25	.	.	.	**82**	+	8	.	.	.
Caucalis platycarpos*	62	31	**96**	75	.	.	44	70	60	82	+	33	.	25	17	.	.	.	.	75
Anthemis austriaca	.	38	**100**	.	.	.	.	.	.	+	.	17	.	38		29	+	.	.	.
Galium tricornutum	14	19	**80**	39	21	5	+	70	+	+	+	4	70		45	29	2	15	.	.
Camelina microcarpa	2	44	66	25	.	.	.	+	**80**	.	+	13	10	19	+	29	8	45	48	38
Adonis aestivalis	87	25	43	86	.	7	55	70	90	60	92	**96**	90	56	18	86	30	95	66	38
Caucalidion																				
Consolida regalis*	83	83	93	86	18	29	78	50	90	62	100	89	90	62	73	100	40	95	66	100
Silene noctiflora	57	35	60	96	9	34	22	30	30	85	75	80	50	19	55	57	22	60	38	50
Euphorbia exigua	88	44	13	79	45	90	55	90	100	98	67	54	70	.	82	43	13	25	34	63
Fumaria vaillantii	21	15	37	39	+	.	.	10	80	5	33	28	30	12	.	71	3	15	38	63
Stachys annua	23	48	67	21	7	26	.	.	90	50	25	+	.	12	**100**	43	16	85	24	88
Anagallis foemina	37	31	20	57	7	31	22	50	.	38	.	7	+	6	55	43	8	.	.	75
Lathyrus tuberosus	45	33	77	68	+	10	.	10	.	16	83	54	30	31	82	100	82	10	.	.
Ajuga chamaepitys	19	25	23	18	9	14	.	(10)	.	.	.	+	.	.	55	+	.	.	.	.
Galeopsis angustifolia	10	23	+	7	.	5	.	10	.	.	.	4	+	.	27		.	.	.	.
Euphorbia platyphyllos*	2	+	.	.	.	.	.	+	.	5	.	4	+	.	55	29	.	.	.	.
Misopates orontium	.	4	.	.	+	+	.	.	20	.	.	.	.	.	18	.	.	.	.	.
Melampyrum barbatum	.	6	.	+	.	.	.	.	.	.	.	.	.	.	+	+	.	.	.	.
Thymelaea passerina	.	.	.	.	.	+	.	.	+	.	.	.	.	.	.	+	.	.	.	.
Centaureetalia																				
Papaver rhoeas	74	69	93	61	93	40	89	70	100	87	75	65	70	75	18	57	36	75	90	100
Sinapis arvensis	82	50	87	86	36	67	55	90	100	72	83	72	70	25	18	86	48	100	72	100
Aethusa agrestis*	58	35	+	57	13	40	.	10	20	90	+	54	30	6	36	29	25	25	45	+
Neslia paniculata	39	29	33	71	.	5	22	50	80	42	33	54	10	6	18	+	12	60	34	63
Veronica polita	20	50	20	32	18	41	+	10	70	.	25	41	50	25	45	57	2	30	41	63
Sherardia arvensis	61	38	.	32	61	71	78	50	20	92	33	35	30	6	36	+	32	25	.	25
Avena fatua	62	40	47	61	7	31	.	30	80	95	67	70	50	12	18,	86	39	60	.	.
Medicago lupulina	53	33	63	54	38	47	.	.	80	72	58	35	10	.	82	43	39	65	31	38
Ranunculus arvensis	53	10	10	11	20	34	67	30	50	26	83	13	30	.	+	57	10	.	14	.
Campanula rapunculoides	54	21	.	68	+	48	33	70	70	42	25	28	10	.	.	.	.	65	69	25
Valerianella dentata*	50	10	.	11	20	34	22	50	**100**	69	.	13	10	.	.	.	.	55	41	25
Galium spurium	.	50	17	36	.	.	.	+	70	.	75	30	10	.	.	57	.	50	14	38
Geranium dissectum	26	+	.	.	+	36	49	10	.	18	17	11	+	.	.	.	2	10	.	.
Veronica agrestis	4	.	.	+	.	.	33	+	.	13	.	.	+	.	.	.	24	.	+	50

Tab. 10. - cont.

Valerianella locusta	29	6	+	+	7	31	.	.	.	+	.	+	.	.	.	.	.	.	.	.	
Mercurialis annua	3	10	20	7	**52**	40	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Galeopsis ladanum	35	.	.	.	.	9	.	.	50	82	.	.	.	.	.	.	.	.	.	.	
Valerianella rimosa	2	+	.	.	**29**	+	.	.	.	.	.	+	.	.	.	.	.	.	.	.	
- speirochoric group																					
Agrostemma githago	10	19	47	.	27	3	+	+	**80**	+	.	.	+	.	.	+	.	25	24	50	
Rhinanthus alectorolophus	23	.	.	.	+	9	.	+	30	13	.	.	.	.	.	.	.	10	.	.	
Bromus secalinus	9	.	.	.	.	.	.	.	.	.	.	.	+	.	+	.	.	20	.	+	
Atriplici-Chenopodietalia																					
Centaurea cyanus	46	50	57	.	21	24	67	50	90	36	.	13	30	.	18	29	32	75	76	**100**	
Apera spica-venti	2	4	7	.	**77**	29	+	(50)	30	+	.	4	(10)	12	.	.	+	65	24	50	
Vicia hirsuta	42	10	.	+	34	38	.	+	30	19	.	7		.	27	+	27	35	10	38	
Anthemis arvensis	5	23	.	.	.	10	22	(30)	60	13	.	7	+	.	.	.	7	45	10	+	
Raphanus raphanistrum	7	19	23	+	14	24	33	.	.	11	.	20	.	.	18	29	.	.	7	+	
Vicia tetrasperma	2	+	.	.	9	17	22	(10)	.	.	.	15	.	.	+	+	13	95	7	.	
Scleranthus annuus	4	31	+	.	.	3	.	.	+	.	.	7	(10)	.	+	+		+	.	.	
Setaria viridis	.	6	.	11	13	41	.	.	.	.	+	+	.	.	**82**	.	2	.	.	.	
Setaria pumila	.	6	20	+	11	5	.	.	.	.	.	.	.	.	27	57	+	.	.	.	
Aphanes arvensis	.	+	.	.	18	41	+	(30)		+	.	.	(90)	.	.	.	.	.	.	.	
Matricaria recutita	.	.	.	+	+	9	.	.	.	.	.	+	.	.	.	.	7	.	.	.	
Persicaria pallida*	.	.	.	+	5	.	.	.	.	.	.	9	.	.	18	+	.	.	.	.	
Acetosella vulgaris	.	6	.	.	.	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Echinochloa crus-galli	.	.	.	.	.	.	.	.	.	.	+	.	.	.	45	.	.	.	.	.	
Sisymbrietalia																					
Descurainia sophia	.	15	53	50	.	.	+	+	.	.	.	48	+	56	.	43	+	+	+	.	
Conyza canadensis	+	13	17	+	21	9	.	.	.	.	+	4	.	.	.	.	7	.	.	38	
Lactuca serriola	.	13	10	+	.	.	.	.	.	.	17	7	.	25	18	29	4	.	.	.	
Diplotaxis muralis	.	.	+	.	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Onopordetalia																					
Cardaria draba	.	35	60	18	.	.	.	.	.	.	.	13	+	.	+	71	3	.	.	.	
Cichorium intybus	3	.	.	11	.	.	.	.	.	.	+	4	+	.	+	+	7	+	34	.	
Melilotus officinalis	10	.	7	18	.	.	.	.	.	.	.	4	.	.	27	.	16	+	.	+	
Reseda lutea	.	17	10	14	.	.	.	+	.	.	.	.	+	.	18	.	.	+	.	.	
Cerinthe minor	.	33	13	11	.	.	.	.	+	.	.	.	.	.	36	+	.	.	.	.	
Echium vulgare	.		.	+	+	.	.	.	+	.	.	+	.	.	+	.	3	+	.	.	
Lappula squarrosa	.	4	.	.	.	.	.	.	.	.	.	.	.	.	18	.	.	.	.	.	
Galio-Alliarion																					
Lapsana communis	53	15	.	18	25	47	33	30	40	95	67	17	30	6	.	.	30	.	.	38	
Galeopsis tetrahit	53	.	.	21	+	47	.	30	.	44	+	36	30	.	.	.	27	.	.	.	
Galeopsis bifida	.	.	.	.	.	.	.	.	20	.	.	+	.	.	.	+	2	.	.	.	
***Agropyro-Rumicion* s. l.**																					
Mentha arvensis	21	+	.	+	34	45	22	+	+	+	.	9	+	.	.	.	28	.	.	+	
Stachys palustris	4	.	.	7	.	.	.	30	+	10	33	4	10	.	.	.	.	.	.	.	
Agrostis stolonifera	12	.	.	.	46	38	.	+	.	.	.	.	+	.	.	.	.	.	.	.	
***Molinio-Arrhenatheretea* s. l.**																					
Achillea millefolium agg.	28	8	.	.	20	31	+	10	.	36	+	9	+	38	.	.	.	45	55	38	
Vicia cracca	7	+	.	.		5	.	+	20	23	.	4	.	.	.	.	.	+	.	38	
Cerastium holosteoides	10	+	.	.	20	22	.	.	.	+	.	+	.	.	.	.	.	.	.	.	
Vicia sepium	3	.	.	.	.	+	.	.	.	.	.	.	+	.	.	.	.	.	.	.	

Tab. 10. - cont.

Stellaria graminea	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	15	.	.		
***Festuco-Brometea* s. l.**																						
Falcaria vulgaris	23	44	7	25	4	7	.	30	30	16	.	15	30	.	18	+	6	60	24	25		
Securigera varia	+	13	7	14	+	+	.	.	30	+	.	.	.	.	.	.	.	50	24	.		
Silene vulgaris*	29	.	.	11	4	16	.	+	.	39	.	.	.	.	.	.	.	50	41	38		
Alyssum alyssoides	.	.	.	7	.	.	.	.	60	.	.	+	.	.	+	.	.	20	17	50		
Hylotelephium maximum	31	.	.	.	.	+	.	10	.	18	.	.	+	.	.	.	.	20	24	.		
Vicia tenuifolia	.	.	.	11	.	.	.	+	.	.	.	4	+	.	.	+	.	60	14	.		
Nonea pulla	.	.	.	18	.	.	22	(30)	.	.	.	+	+	.	+	.	.	.	.	.		
Salvia verticillata	.	.	.	21	.	.	.	.	50	.	.	.	.	.	.	.	+	65		38		
Hesiodia montana	.	8	.	.	.	.	.	.	.	.	.	.	.	.	18	+	.	.	.	.		
Orlaya grandiflora	2	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.		

1. *Caucalido latifoliae-Adonidetum flammeae* Tüxen ex Oberdorfer 1957 (sec. Oberdorfer 1983, tab.139, col.1)
2. *Anthemido austriacae-Camelinetum microcarpae* Holzner 1973 (tab. in suppl., synthesis of corresponding relevés)
3. *Camelino microcarpae-Anthemidetum austriacae* Holzner nom. invers. Mucina 1993 caucalidetosum Pinke 2000 (tab.2)
4. *Caucalido daucoidis-Conringietum orientalis* Klika 1936 (sec. Kropáč 2006, tab.1, col.1)
5. *Apero-Lathyretum aphacae* Tüxen et Rochow ex Rochow 1951 nom. invers. Oberdorfer 1983 (tab.139, col.5)
6. *Linarietum spuriae* Kruseman et Vlieger 1939 (sec. Oberdorfer 1983, tab.139, col.4)
7. *Caucalido daucoidis-Scandicetum pectinis-veneris* Tüxen 1937 (tab. on pp.17-18)
8. *Caucalido-Scandicetum* (Tx. 1950) R.Schubert et Köhler 1964 (selected Rasse v. *Lapsana communis,* Ausbildungsform v. *Adonis aestivalis* var. *citrinus* - sec. Schubert et Mahn 1968, tab.1, col. B2a1)
9. The same syntaxon (sec. Kornaś 1950, tab.10)
10. *Caucalido-Adonidetum* Tüxen 1950, Rasse v. *Lapsana communis* (sec. Nezadal 1975, tab.9 in suppl.)
11. *Lathyro tuberosi-Adonidetum aestivalis* Kropáč et Hadač in Kropáč et.al. 1971 (sec. Otýpková 2001, tab.1, col.2)
12. The same syntaxon (sec. Kropáč 2006, tab.1, col.2)
13. *Galio-Adonidetum* R.Schubert et Köhler 1964 (selected Rasse v. *Lapsana communis,* Ausbildungsform v. *Neslia paniculata* - sec. Schubert et Mahn 1968, tab.2, col. B2b)
14. *Lathyro tuberosi-Adonidetum aestivalis* Kropáč et Hadač in Kropáč et. al. 1971 (sec. Lososová 2004, tab.2, col.1)
15. *Euphorbio exigue-Melandrietum noctiflori* G.Müller 1964 (sec. Krippelová 1981, tab.13)
16. *Lathyro tuberosi-Adonidetum aestivalis* Kropáč et Hadač in Kropáč et. al. 1971 (sec. Kropáč et Mochnacký, hoc loco tab.1)
17. The same syntaxon (sec. Mochnacký 2000, tab.2, col.3)
18. Community of *Caucalido-Scandicetum* x *Vicietum tetraspermae* (sec. Wnuk 1989, tab.17)
19. *Caucalido-Scandidetum* Tüxen 1937 (sec. Siciński 1974, tab.5)
20. The same santaxon (sec.Warcholińska 1974, tab.19)

Explanations:

(a) Syntaxa nos. 8 and 13 contain only synthetic tables with classes V-I(s) and therefore mean values in every class are calculated; values lower than 10% (s) are presented +
(b) In the syntaxon no. 14 are not included species of lower constancy than 20%
(c) With respect of above mentioned facts the calculation of average number of species is not possible
(d) Numbers in the parentheses refer to the species of relevant lower syntaxon

Tab. 11. Synoptic table of selected *Caucalidion* communities (2) and *Sherardion* communities.

Syntaxon no.	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
Number of relevés	25	20	52	76	157	113	70	48	21	28	28	76	27	9	15	22	8	17	15	59	58	29	13	18	8
Average number of species	-	-	25	29	29	-	35	35	34	-	39	27	26	19	36	17	38	42	59	41	-	32	44	31	30
Scandix pecten-veneris	**10**	**10**	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Legousia speculum-veneris		15	**38**	13	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	.	.	.
Alopecurus myosuroides	**90**	**65**		+	30	.	+	.	.	.	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lathyrus aphaca	.	.	2	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Bifora radians	.	.		+	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Conringia orientalis	.	.	+	.	.	+	.	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Galium tricornutum	.	.	10	.	.	10	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Caucalis platycarpos*	.	.		3	.	.	6	.	.	12	.	.	.	.	+	.	.	.	.	.	.	+	.	.	.
Adonis aestivalis	.	.	6	5	+	+	.	+	.	4	.	+	.	.	.	.	.	.	.	.	.	.	.	+	.
Euphorbia falcata	.	.	23	.	.	+	+	38	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Kickxia spuria	.	.	4	3		+	+	50	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Kickxia elatine	.	.	4	.	+	+	+	17	43	.	7	+	+	.	.	9	50	**76**	**80**	.	+	7	.	.	.
Camelina microcarpa	.	.	10	.	.	+	6	.	+	12	7	+		**70**	+	.	.	.	.	3	.	7	.	.	.
Anthemis austriaca	.	.	+	5	.	.	3	.	+	.	.	.	.	.	**93**	27	**63**	.	.	+	.	.	.	.	.
Misopates orontium	.	.	.	.	.	.	.	.	29	.	.	.	.	.	+	10	**88**	**76**	.	.	.	.	.	.	.
Anthemis ruthenica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	13	9	.	.	.	.	.	.	.	.	.
Vicia pannonica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	45	.	.	.	.	.	.	.	.	.
Galium parisiense	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	100	.	.	.	.	.	.	.	.
Logfia arvensis	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	88	.	.	.	.	7	.	.	.
Silene gallica	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	+	53	.	.	.	.	.	.
Caucalidon																									
Silene noctiflora	70	100	67	76	78	70	94	75	48	64	50	90	96	50	87	27	.	+		27	(50)	10	+	+	25
Euphorbia exigua	.	15	65	61	64	90	73	71	67	24	32	50	48	(30)	47	43	25	59	73	3	.	17	23	.	.
Lathyrus tuberosus	.	.	23	17	13	30	40	63	76	44	29	70	89	30	+	18	50	.	.	.	.	10	31	78	75
Consolida regalis*	.	.	56	25	19	10	43	29	57	40	75	50	26	90	93	82	.	47	.	8	+	+	.	.	+
Stachys annua	.	.	13	+	+		+	31	67	56	+	.	.	.	.	18	63	29	.	.	.	.	+	.	.

Tab. 11. - cont.

Anagallis foemina	.	.	+	5	2	+	6	17	+	44	.	.	.	.	+	.	25	+	.	.	.	.	.	.	.
Fumaria vaillantii	.	.	+	3	+	+	3	15	.	.	14	.	.	.	.	18	.	.	.	.	.	.	.	.	.
Euphorbia platyphyllos*	.	.	6	.	.	+	+	.	10	.	.	.	.	.	.	.	.	12	.	.	.	.	.	.	.
Galeopsis angustifolia	.	.	4	.	.	+	3	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ajuga chamaepitys	.	.	8	.	.	.	.	.	.	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Melampyrum barbatum	.	.	.	.	.	.	.	.	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sherardion																									
Sherardia arvensis	.	+	65	55	62	50	61	40	33	20	11	.	52	.	20	.	63	**76**	53	54	10	55	69	33	63
Valerianella dentata	30	+	33	24	34	10	20	6	29	.	21	.	7	(30)	+	.	.	59	**93**	41	+	45	**69**	.	.
Neslia paniculata	.	.	17	29	19	30	21	8	14	.	11	+	.	.	20	.	.	.	.	71	10	17	**85**	28	+
Geranium dissectum	30	10	6	29	27	+	17	25	.	.	.	.	.	.	+	.	.	24	**93**	32	.	14	54	.	.
Ranunculus arvensis	.	.	15	13	27	.	6	8	10	.	14			+	13	27	.	12	+	14	.	+	+	.	.
Veronica agrestis	.	10	.	7	3	+	3	.	.	.	18	+	.	.	.	.	.	.	.	31	+	14	.	.	.
Galeopsis ladanum	.	.	.	3	.	.	.	+	.	.	.	.	.	.	.	.	38	**71**	20	3	10	.	.	.	.
Valerianella locusta	.	.	.	+	.	.	.	.	**+**	.	.	+	.	(30)	.	.	.	.	.	+	+	.	.	17	38
Centaureetalia																									
Sinapis arvensis	10	15	58	51	53	70	74	46	29	52	89	90	41	50	33	18	.	+	80	46	30	+	77	94	75
Medicago lupulina	30	25	58	29	31	10	56	48	57	24	32	30	15	10	73	9	+	29	60	41	(70)	28	62	61	100
Avena fatua	10	+	50	87	43	70	59	60	62	44	.	30	85	(10)	33	.	.	35	.	53	+	14	69	**100**	**100**
Papaver rhoeas	70	75	77	63	64	50	50	31	43	56	68	70	63	70	73	18	.	24	.	25	(50)	17	.	.	.
Aethusa agrestis*	.	.	52	67	27	10	44	38	29	20	18	50	52	.	40	19	.	41	20	53	50	31	.	11	+
Campanula rapunculoides	.	.	46	18	12	10	43	40	+	.	7	30	37	.	13	.	.	12	40	51	30	41	62	61	50
Veronica polita	.	.	19	.	10	30	50	19	10	36	11	30	11	30	27	24	+	+	.	8	.	+	+	.	+
Galium spurium	.	.	35	.	.	10	11	48	24	32	7	.	22	(30)	27	.	50	35	.	10	.	41	+	.	.
Mercurialis annua	.	+	10	.	6	+	7	.	.	.	.	.	.	.	.	.	63	.	.	.	.	+	.	.	.
Valerianella rimosa	.	+	10	.	.	.	+	.	10	.	.	.	.	.	.	.	.	+	13	.	.	7	.	.	.
- speirochoric group																									
Agrostemma githago	.	10	+	+	2	+	.	.	10	.	39	+	.	.	+	.	.	18	+	.	.	7	38	28	.
Rhinanthus alectorolophus	.	.	.	+	11	.	+	.	.	.	.	.	.	.	.	.	.	.	20	3	.	14	+	**61**	.

Tab. 11. - cont.

Bromus secalinus	.	.	.	.	2	.	.	.	.	.	29	.	.	.	.	.	.	+	.	.	.	.	23	.	.
Atriplici-Chenopodietalia																										
Matricaria recutita	70	65	.	5	5	(10)	6	.	10	4	+	+	.	50	13	.	.	.	.	.	+	.	.	.	.
Aphanes arvensis	30	10	6	3	15	(30)	3	.	+	.	.	+	.	.	+	.	.	18	40	20	30	24	.	.	.
Spergula arvensis*	10	10	+	.	.	.	+	.	10	.	.	+	.	.	+	.	.	12	40	36	10	24	+	.	.
Apera spica-venti	10	15	15	7	16	(50)	13	4	+	.	71	50	26	70	40	27	.	18		17	70	28	+	.	.
Vicia hirsuta	.	+	17	9	38	(+)	20	8	29	.	36	10	.	.	33	100	25	47	67	66	50	62	54	100	75
Centaurea cyanus	.	+	33	13	20	30	19	.	52	.	68	70	+	90	60	.	.	59	60	46	70	62	38	50	63
Raphanus raphanistrum	.	+	10	9	29	+	34	.	43	.	**7**	+	.	+	53	.	50	**71**	**87**	66	30	38	54	.	.
Scleranthus annuus	.	.	4	.	7	(10)	13	.	48	.	11	.	+	.	40	9	75	**88**	**93**	51	50	69	62	17	+
Anthemis arvensis	.	.	8	4	8	(10)	+	+	24	.	29	.	+	.	13	.	.	**94**	**93**	44	10	72	85	33	.
Vicia tetrasperma	.	.	13	4	5	(+)	21	8	10	.	64	.	+	.	33	.	50	24	27	41	30	41	.	+	25
Setaria viridis	.	.	+	3	+	+	9	17	10	4	7	.	7	.	20	.	38	12	13	+	.	+	15	.	.
Setaria pumila	.	.	6	+	4	.	7	+	29	12	.	.	33	.	.	9	25	**65**	27	+	.	14	.	.	.
Acetosella vulgaris	.	.	.	.	6	.	6	.	19	.	.	.	.	.	27	.	**63**	29	53	19	(70)	28	23	.	.
Persicaria pallida*	.	.	.	.	6	.	10	.	19	.	43	.	+	.	20	.	.	18	.	5	.	.	15	.	.
Echinochloa crus-galli	.	.	.	.	.	.	4	15	10	8	+	+	19	.	.	.	.	+	.	3	.	+	.	.	.
Sisymbrietalia																										
Conyza canadensis	.	.	8	.	3	.	16	4	24	.	25	.	.	+	40	.	25	35	.	+	.	.	.	.	.
Descurainia sophia	.	.	6	.	.	+	19	10	.	28	.	+	+	90	60	.	.	+	.	7	.	.	+	.	.
Lactuca serriola	.	.	4	.	.	.	9	56	19	36	.	.	.	(10)	13	.	25	12	.	.	.	.	.	.	.
Diplotaxis muralis	.	.	.	.	.	.	6	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.
Onopordetalia																										
Cichorium intybus	.	.	.	+	+	.	6	.	19	.	**71**	.	7	.	.	18	+	35	**73**	.	.	.	.	.	.
Echium vulgare	.	.	.	.	.	+	+	.	.	.	.	.	.	(30)	+			+	20	3	+	.	23	+	.
Cardaria draba	.	.	4	.	.	.	10	.	14	.	.	.	.	.	+	18	+	.	.	+	.	+	.	.	.
Melilotus officinalis	.	.	+	.	.	.	4	+	+		+	+	.	.	.	.	.	.	.	.	.	.	15	.	+
Reseda lutea	.	.	6	.	.	+	7	.	.	.	.	.	.	(30)	.	.	.	.	.	.	.	.	.	.	.
Cerinthe minor	.	.	8	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Tab. 11. - cont.

Galio-Alliarion																									
Lapsana communis	.	+	62	91	57	50	33	44	14	16	.	+	7	.	13	.	+	12	40	85	70	69	62	61	25
Galeopsis tetrahit	.	+	37	30	59	30	21	15	+	.	7	30	22	.	13	.	.	18	53	**78**	70	72	**85**	**78**	50
Galeopsis bifida	.	.	.	.	.	.	6	4	+	.	.	+	.	.	.	.	.	12	**67**	20	.	+	**77**	33	38
***Agropyro-Rumicion* s. l.**																									
Mentha arvensis	70	55	13	11	34	30	27	35	19	8	61	30	26	.	.	.	.	41	**100**	47	30	41	**77**	**89**	**88**
Stachys palustris	.	15	+	4	8	30	26	29	10	8	18	30	33	.	+	.	.	41	**93**	39	30	17	**69**	44	50
Agrostis stolonifera	30	30	10	5	21	30	.	4	10	.	50	+	.	.	.	.	.	24	**53**	14	+	31	23	.	+
***Molinio-Arrhenatheretea* s. l.**																									
Achillea millefolium agg.	.	10	10	28	26	10	16	13	33	12	36	+	19	.	13	.	38	35	**100**	44	30	34	**77**	.	.
Cerastium holosteoides	50	20	12	+	10	+	9	6	10	.	64	.	.	.	+	.	25	+	**73**	24	30	38	23	11	.
Vicia cracca	.	.	8	.	2	+	7	+	+	4	21	.	7	.	+	.	+	12	**60**	14	+	28	31	**67**	25
Stellaria graminea	.	.		.	.	.	.	.	14	.	.	.	.	.	.	.	25	29	**60**	3	10	14	31	11	+
Lathyrus pratensis	.	.	4	3	5	.	+	.	.	.	.	.	.	.	.	.	.	.	**60**	5		7	+	.	+
Vicia sepium	.	.	+	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	13		+	+	+	.	.
Gladiolus imbricatus	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	23	11	.
***Festuco-Brometea* s. l.**																									
Falcaria vulgaris	.	.	21	12	8	+	4	.	24	.	.	+	.	(30)	+	.	.	+	.	3	.	7	.	.	.
Hylotelephium maximum	.	.	+	7	26	+	3	.	.	.	.	.	+	.	.	.	.	+		5	10	.	.	.	.
Salvia verticillata	.	.	+	.	.	.	+	+	10	.	.	.	.	.	.	.	.	.	.	.	.	.	38	+	.
Securigera varia	.	.	.	.	.	.	+	.	.	.	+	.	.	.	.	.	38	.	.	.	.	+	31	.	.
Silene vulgaris*	.	.	.	+	.	+	.	+	+	.	.	+	.	.	.	.	.	.	.	.	+	.	+	.	.
Nonea pulla	.	.	+	.	.	+	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vicia tenuifolia	.	.	.	.	.	+	.	.	+	.	.	+	.	.	.	.	.	.	.	.	.	.	.	.	.
Alyssum alyssoides	.	.	+	.	.	.	.	.	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.	.	.

1. *Papaveri-Melandrietum noctiflori* prov. Wasscher 1941 (tab. on pp. 440-441, synthesis of 25 relevés)
2. *Papaveri-Melandrietum noctiflori* Wasscher ex Passarge in Scamoni et Passarge 1963 (sec. Haveman et al. 1998, tab. 30.2, col. A2)
3. *Lathyro tuberosi-Silenetum noctiflorae* Oberdorfer 1957 (selected Alpenvorland Rasse, i. e. typische - sec. Holzner 1973, tab. in suppl., synthesis of corresponding relevés)

Tab. 11. - cont.

4. *Lathyro-Silenetum* Oberdorfer 1957 (selected Rasse v. *Lapsana communis,* typ. Subas., typ. Variante - sec. Nezadal 1975, tab. 8 in suppl., synthesis of corresponding relevés)
5. *Papaveri-Melandrietum noctiflori* Wasscher 1941 (sec. Oberdorfer 1983, tab. 139, col. 6)
6. *Euphorbio-Melandrietum* G. Müller 1964 (selected Rasse v. *Galeopsis tetrahit*, Ausbildungsform v. *Sherardia arvensis,* typ. Subas. - sec. Schubert et Mahn 1968, tab. 4, col. A2b)
7. *Euphorbio exiguae-Melandrietum noctiflori* G. Müller 1964 (sec. Kropáč 2006, tab. 1, col. 8)
8. The same syntaxon (sec. Otýpková 2001, tab. 1, col. 3)
9. The same syntaxon (sec. Kropáč et Mochnacký hoc loco, tab. 2)
10. The same syntaxon (sec. Lososová 2004, tab. 2, col. 2)
11. *Vicietum tetraspermae cichorietosum intybi* var. *Melandrium noctiflorum* Wójcik 1965 (tab. 2 in suppl., synthesis of rel. 1-28)
12. *Euphorbio exiguae-Melandrietum noctiflori* G. Müller 1964 (sec. Borowiec et al. 1985, tab. 3, col. 2)
13. *Lathyro tuberosi-Melandrietum noctiflori* Oberdorfer 1957 (sec. Anioł-Kwiatkowska 1988, tab.1)
14. *Camelino microcarpae-Consolidetum regalis* Passarge 1978 (tab. 1, col. e, typ. subass. and relevant lower syntaxa in the parentheses)
15. *Consolido-Anthemidetum austriacae* Kropáč et Mochnacký 1990 (sec. Kropáč 2006, tab. 1, col.3)
16. The same syntaxon (sec. Mochnacký 2000, tab. 2, col. 4)
17. *Misopato-Galietum parisiensis* Kropáč et Svobodová ass. nova hoc loco (tab.3)
18. *Misopato-Galeopsietum ladanum* Hejný in Kropáč et Hejný 1975 (sec. Kropáč et Mochnacký, hoc loco, tab. 4)
19. *Geranio dissecti-Silenetum gallicae vicietosum* var. *Kickxia elatine* Kornaś 1968 (tab. 33 in suppl., synthesis of rel. 1-15)
20. *Aethuso cynapium-Galeopsietum tetrahit* G. Müller 1964 (sec. Kropáč 2006, tab. 1, col. 12)
21. The same syntaxon (sec. Schubert et Mahn 1968, tab. 7, typ. subass. et al. subass. in the parentheses)
22. The same syntaxon (sec. Holzner 1973, tab. in suppl., synthesis of corresponding relevés)
23. The same syntaxon (sec. Kropáč et Mochnacký hoc loco, tab. 5)
24. *Rhinantho-Avenetum fatuae* Passarge in Passarge et Jurko 1975 (sec. Mochnacký 2000, tab. 2, col. 1)
25. *Lathyro-Avenetum fatuae* Passarge in Passarge et Jurko 1975 (sec. Mochnacký 2000, tab. 2, col. 2)

See also the explanations in the table 10; syntaxon no. 10 does not contain species of lower constancy than 20%.

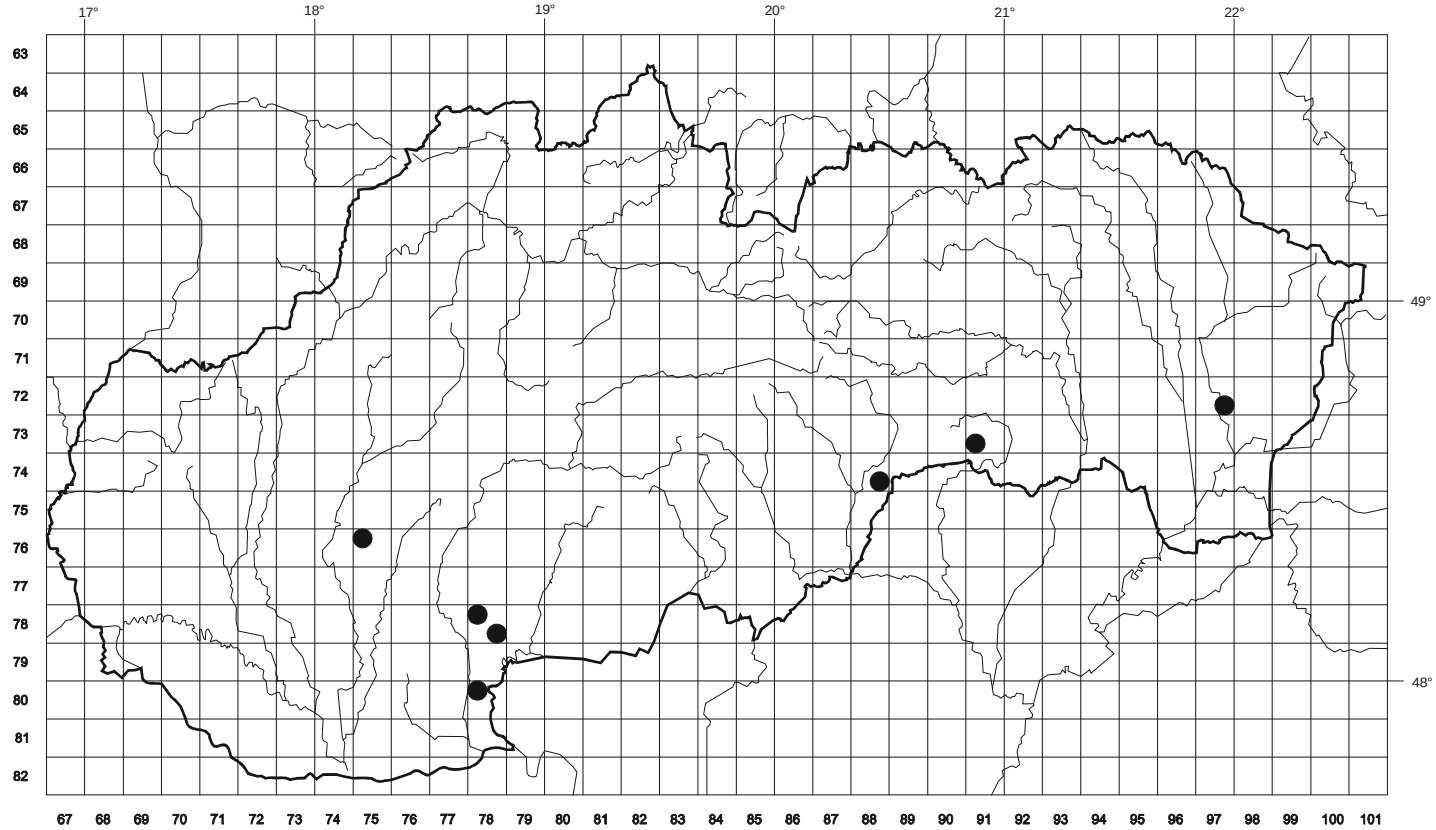

Fig. 1. ***Lathyro tuberosi – Adonidetum aestivalis*** **et Hadač in Kropáč et al. 1971.**

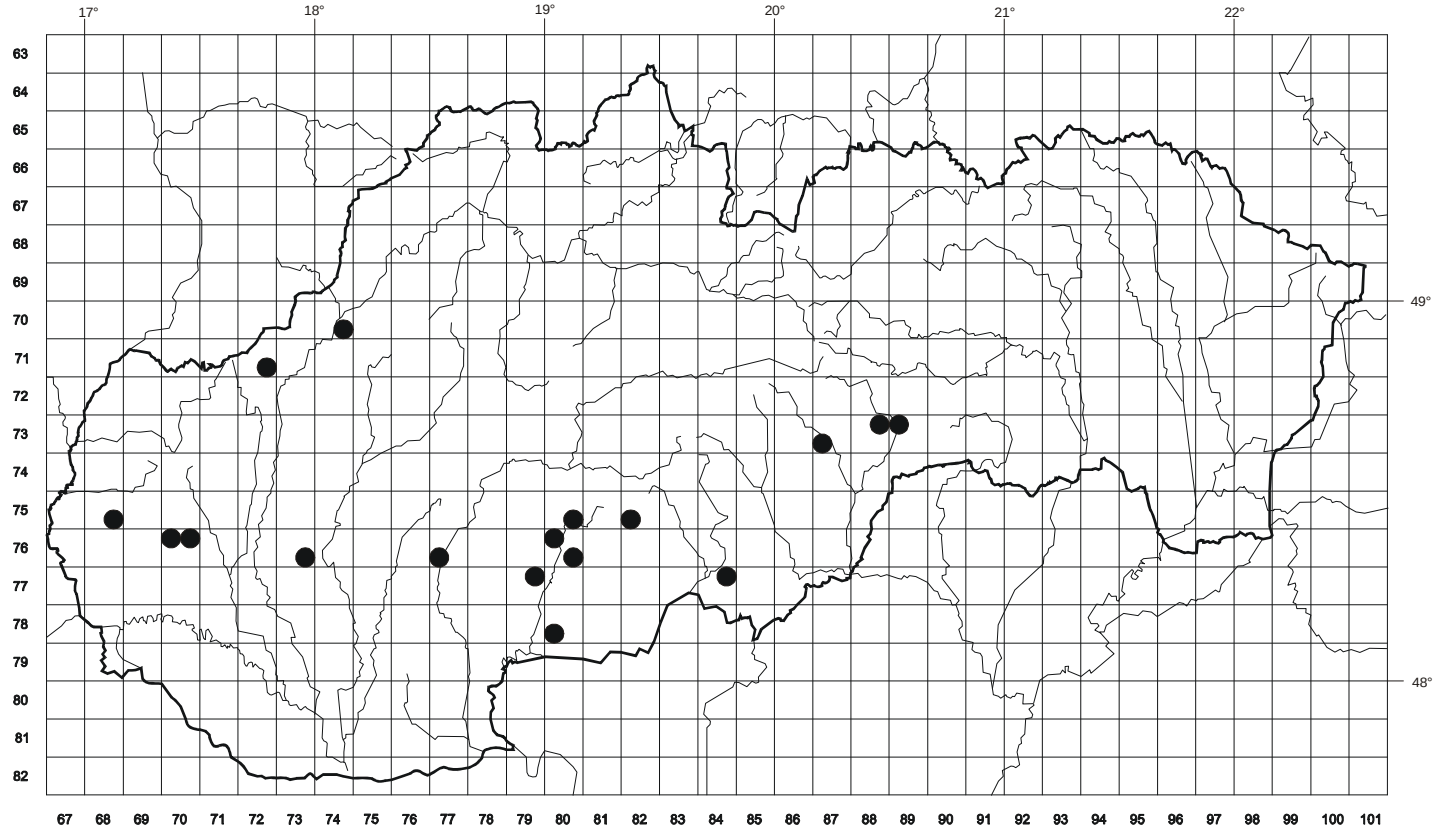

Fig. 2. *Euphorbio exiguae – Melandrietum noctiflori* G. Müller 1964.

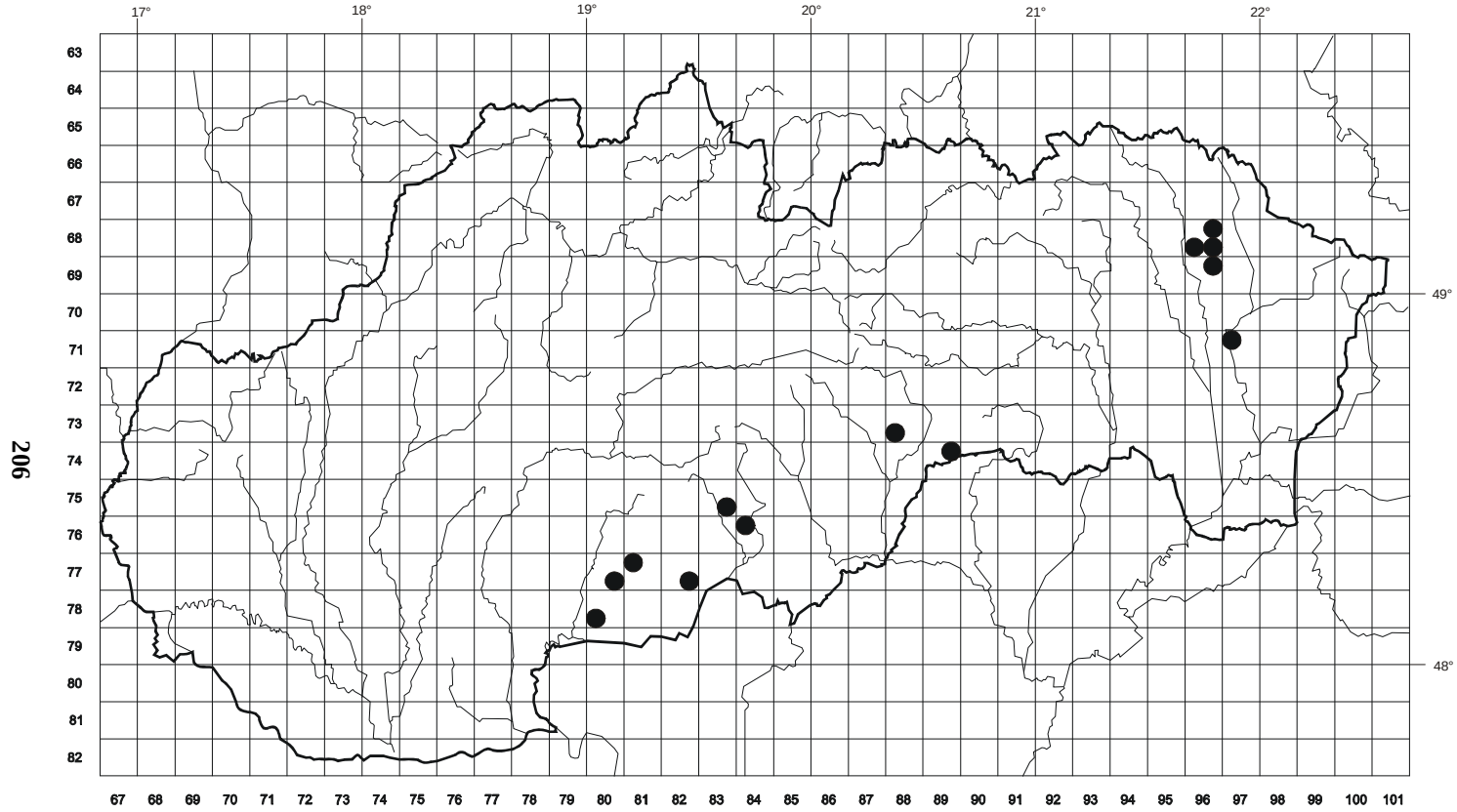

Fig. 3. *Misopato - Galeopsietum ladanum* Hejný in Kropáč et Hejný 1975.

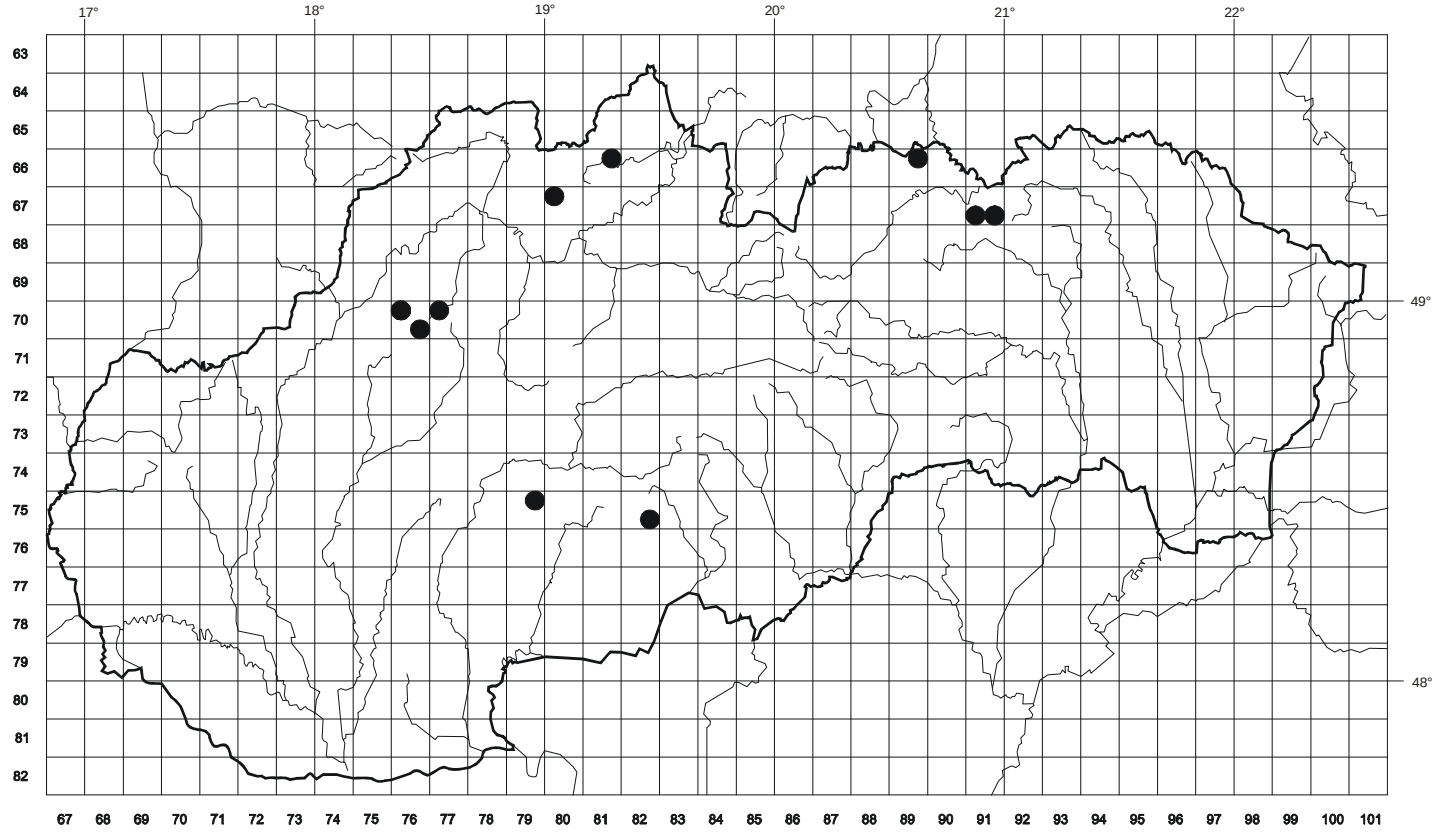

Fig. 4. *Aethuso cynapium – Galeopsietum tetrahit* G. Müller 1964.

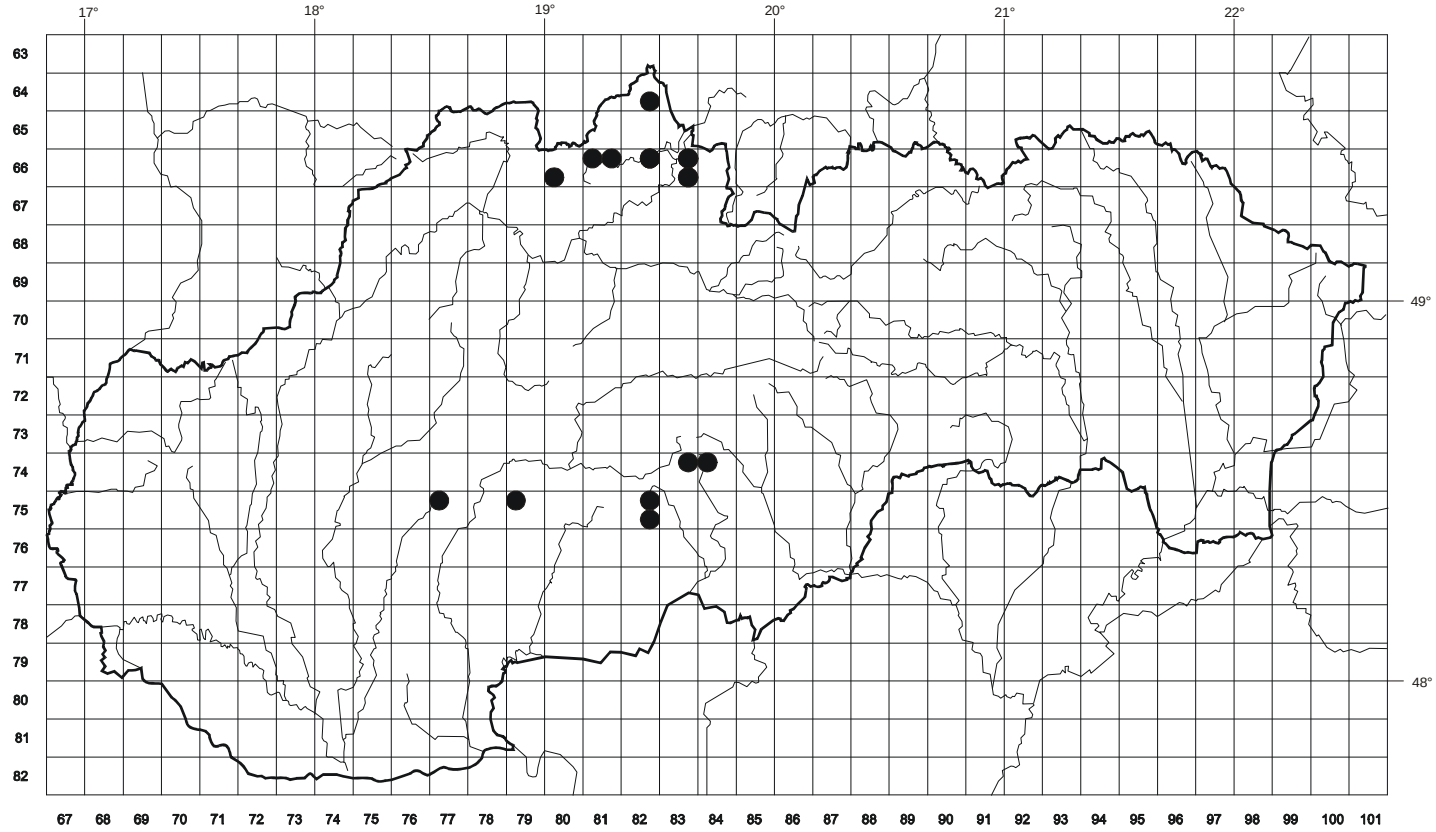

Fig. 5. *Spergulo arvensis - Scleranthemum annui* Kuhn 1937.

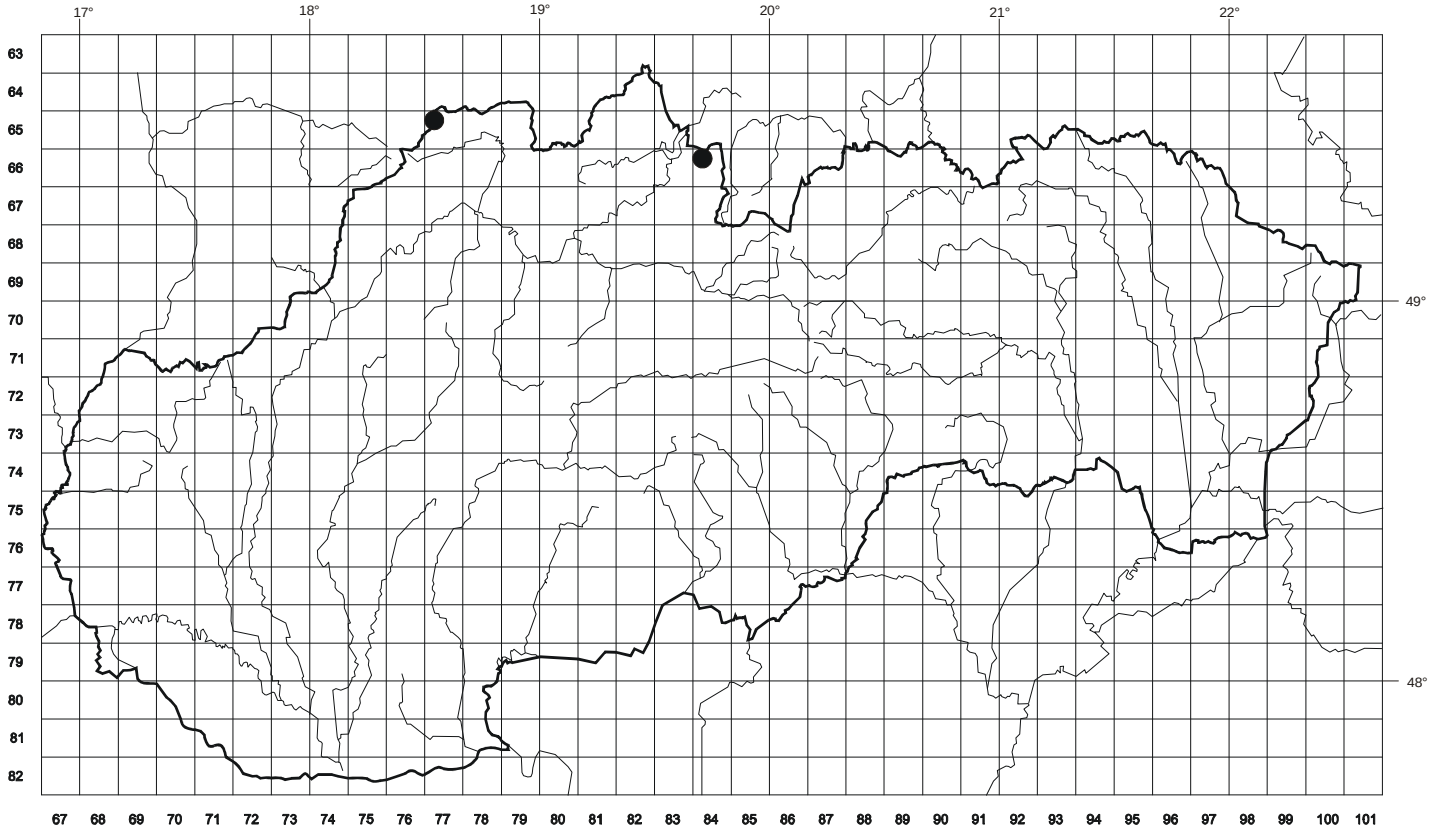

Fig. 6. *Holco - Galeopsietum tetrahit* Hilbig 1967.

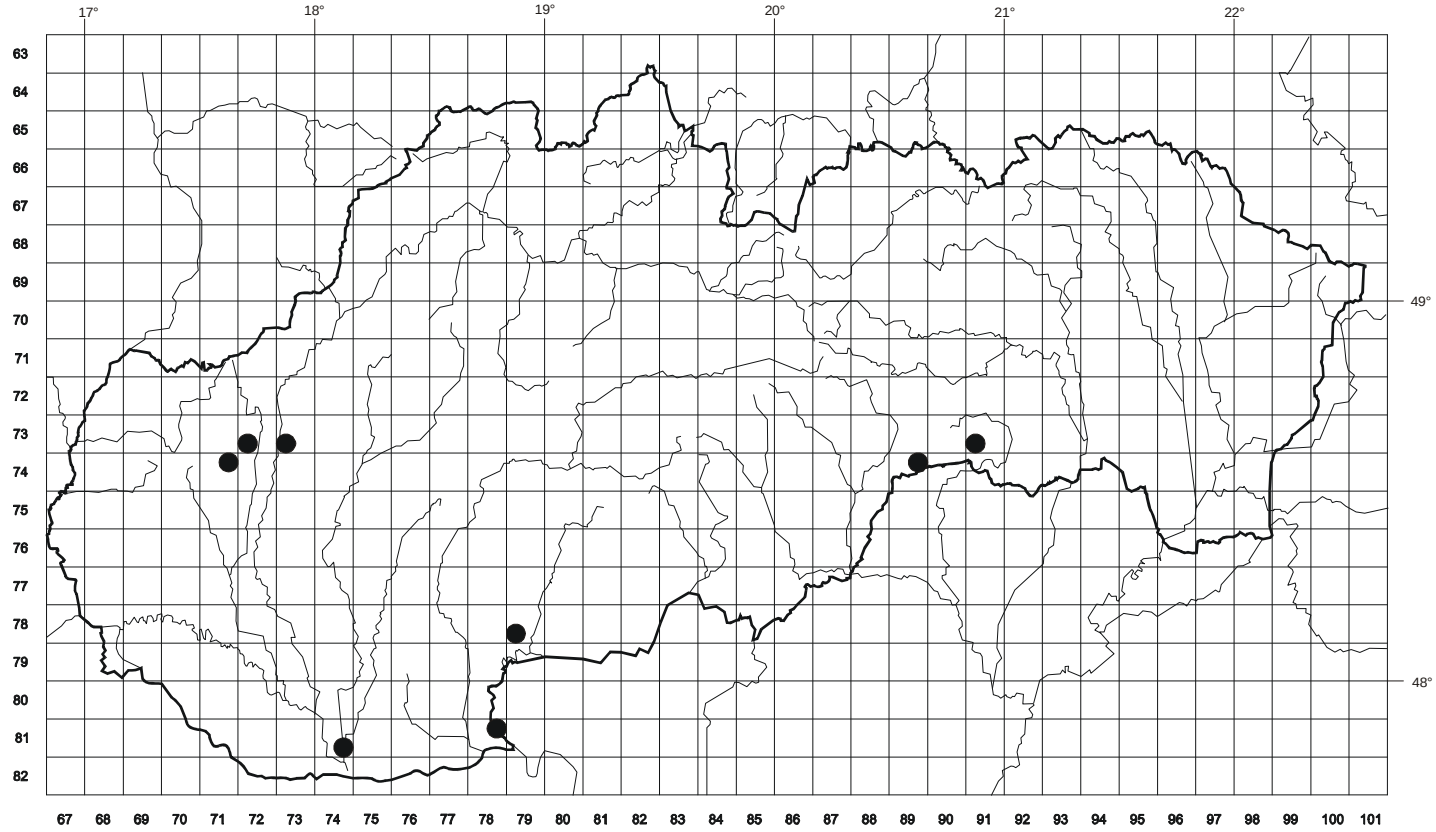

Fig. 7. *Stachyo annuae – Setarietum pumilae* Felföldy 1942 corr. Mucina 1993.

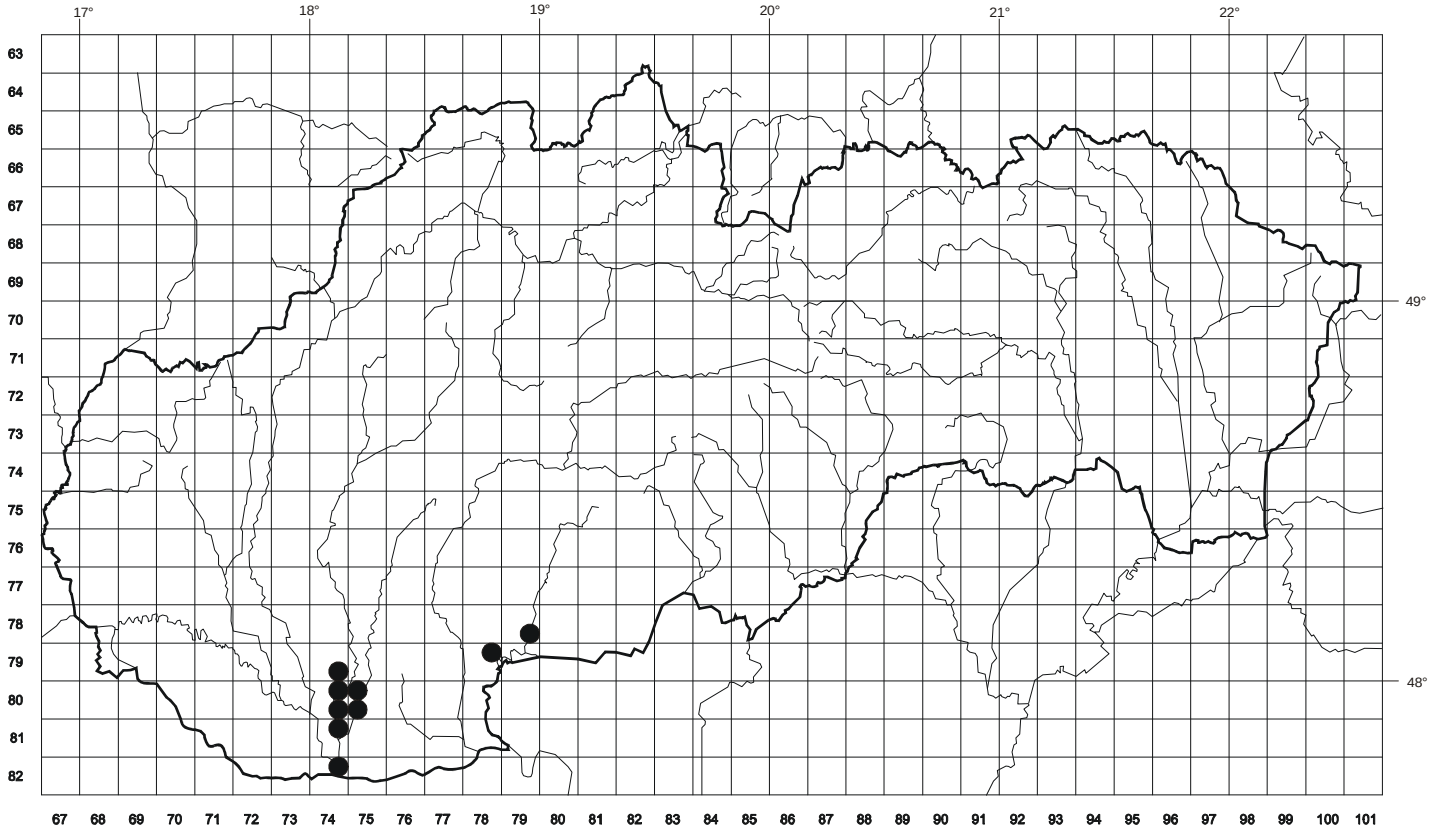

Fig. 8. *Hibisco – Eragrostietum* Soó et Timár in Timár 1957.

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