

HIERACIO UMBROSI-QUERCETUM PETRAEAE PÎNZARU, CANTEMIR, MANIC & POPESCU – ASS. NOVA, FROM THE CENTRAL MOLDOVAN PLATEAU OF THE REPUBLIC OF MOLDOVA

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Abstract: The forests of sessile oak (*Quercus petraea* (Matt.) Liebl.) with *Hieracium umbrosum* Jord., found on the Central Moldovan Plateau, are described in this article. Based on 12 relevés, the authors have grouped these forests in an plant community that is new for science – *Hieracio umbrosi-Quercetum petraeae* Pînzaru, Cantemir, Manic et Popescu, included in the alliance *Quercion pubescenti-petraeae* Br.-Bl. 1932, the order *Quercetalia pubescenti-petraeae* Klika 1933, cl. *QUERCO-FAGETEA* Br.-Bl. et Vlieger in Vlieger 1937.

Keywords: *Hieracio umbrosi-Quercetum petraeae* ass. nova, characteristics of phytocoenoses, ecology, range, R. Moldova.

Introduction

Hieracium umbrosum Jord. (Asteraceae) [incl. *H. umbrosum* Jord. ssp. *pseudofastigiatum* (Degen et Zahn) Zahn] is a xeromesophilic hemicryptophyte, found in the Mediterranean Basin, Central Europe, Ukraine (north-west) and Denmark [SELL & WEST, 1976; SHLJAKOV, 1989; CONTI & al. 2005; SÎRBU & al. 2013; TEOFILOVSKI, 2016].

In the Republic of Moldova, the species *Hieracium umbrosum* Jord. was collected, for the first time, in the early 70s of the last century, by the collaborators of the Botanical Garden of the ASM: Afanasie Istrati, Vasile Chirtoacă, Ksenia Vitko and Aglaia Railean, in the forests of the central area of the country (Logănești and Mereșeni villages), and by Dumitru Gociu, in the forest near Dondușeni town [NICOLAEV, 1994]. Unfortunately, no exsiccata has been preserved in the Herbarium of the Botanical Garden. This article presents new information on the chorology and phytocoenotic belonging of the species *H. umbrosum* Jord.

Materials and methods

The floristic and phytocenotic studies have been carried out in 2016-2017, in the forests of sessile oak (*Quercus petraea* (Matt.) Liebl.) found on the Central Moldovan Plateau. Twelve relevés have been described according to the methods of the Central European School [BRAUN-BLANQUET, 1964]. The area of a relevé is 600 m², according to the school of Cluj [CRISTEA & al. 2004]. The list of species is presented in accordance with recent publications [APG – III, 2009; PÎNZARU & SÎRBU, 2016]. Air temperature and

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atmospheric precipitation – according to the Atlas of Climate Resources of the Republic of Moldova [NEDAELCOV & al. 2013].

Results and discussion

During the floristic studies conducted on the Central Moldovan Plateau, the species *Hieracium umbrosum* Jord. was found in the forests of sessile oak in the forest divisions “Mereșeni” (Mereșeni commune, plots 57, 75), “Logănești” (Lăpușna commune, plot 23, and Logănești commune, plots 28, 36, 41) and “Bobeica” (Văsieni commune, plots 27, 34) of the “Hîncești-Silva” Forest Management Unit.

Under the conditions of the Republic of Moldova, the individuals of the species grow from 30 cm to 100 cm tall. The stems are erect, hairy (long, soft hairs), branched in the upper part, leafy up to the tip. The leaves are wide-ovate, wide-rhomboidal, the lower leaves are petiolate, the upper ones – short-petiolate to slightly amplexicaul, shortly-acute at the tip, on the margins – distantly denticulate, ciliate, with sparse hairs on both sides, on the dorsal side – the midrib with long, soft hairs, with no glandular hairs. Involucral hypsophiles with glandular, blackish, dense hairs and numerous stellate hairs. Yellow flowers. An inflorescence contains up to 21 erect anthodia; an anthodium produces 10-45 achenes. The plants flower in June-July (first half); at the end of July, the fruits are already mature. The achenes are cylindrical, blackish, ± 3 mm long and 0.6-0.7 mm wide, longitudinally ribbed, covered with short, flat-lying hairs. The pappus is pale-yellow, with unequal, short, pinnate setae. The plants grow sporadically or in groups, in thermo-xeromesophilic forests of sessile oak, on hills with loamy soil.



Fig. 1. *Hieracium umbrosum* Jord.

The plant communities of sessile oak (*Quercus petraea* (Matt.) Liebl.) with *Hieracium umbrosum* Jord., accompanied by xeromesophilic species: *Cotinus coggygria* Scop., *Euonymus verrucosus* Scop., *Poa nemoralis* L., *Securigera elegans* (Pančić) Lassen, *Vicia cassubica* L., *Lathyrus niger* (L.) Bernh. etc., reveal a specific habitat of loamy hills,

of 210-360 m in height, differing from other sessile oak forests in the floristic composition and ecotope. These coenoses, having a unique character, are proposed to be included in a new association of the alliance *Quercion pubescenti-petraeae* Br.-Bl. 1932.

The description of the new association is presented below.

Ass. *Hieracio umbrosi-Quercetum petraeae*
Pînzaru, Cantemir, Manic et Popescu, ass. nova, h. l.

T y p u s h. l.: Tab. 1, rel. 7.

Table synthetic h. l.: Tab. 1, 12 relevés

Locations: Altitude 210-360 m. Relief: Central Moldovan Plateau, on hills with North-Western aspect, the inclination of the slopes varies between 7° and 25°. Soil: sandy clay. Climate – temperate-continental, the average annual temperature is 10.0-10.5°C, the average annual precipitation varies between 650 mm and 700 mm.

Characteristic species: *Quercus petraea*, *Hieracium umbrosum*.

Constant species: *Tilia tomentosa*, *Sorbus torminalis*, *S. aucuparia*, *Acer tataricum*, *A. campestre*, *Cotinus coggygria*, *Euonymus verrucosus*, *Poa nemoralis*, *Hieracium sabaudum*, *Securigera elegans*, *Vicia cassubica*, *Lathyrus niger*, *Galium schultesii*, *Convallaria majalis*, *Tanacetum corymbosum*.

Rare species protected by the state: *Securigera elegans* [Vulnerable (VU), included in the Red Book of R. Moldova], *Dryopteris filix-mas* [Vulnerable (VU), included in the Red Book of R. Moldova], *Genista elata* [Vulnerable (VU)], *Cystopteris fragilis* [Near threatened (NT)], *Sorbus torminalis* [Near threatened (NT)], *S. aucuparia* [Near threatened (NT)], *Asparagus tenuifolius* [Near threatened (NT)].



Fig. 2. Ass. *Hieracio umbrosi-Quercetum petraeae*

Structure: Vertically, three layers are distinguished in phytocoenoses:

1. The tree layer (A), with a height of about 20 m, the coverage of the canopy is about 70-80%. This layer consists of the dominant species *Quercus petraea*, with the cover-abundance (AD) of 5 points, the diameter of the stems varies between 25 cm and 45 cm. Accompanying species: *Tilia tomentosa*, *Cerasus avium*, *Carpinus betulus*, *Acer campestre*, rarely *Tilia cordata*, *Fraxinus excelsior*, *Acer platanoides*. The species of small trees, 7-8 m tall, *Sorbus torminalis* and *Sorbus aucuparia*, are found sporadically and aren't distinguished as a separate layer.

2. The shrub layer (B), is 1.5-3 m high, unevenly developed, with coverage of 15-50 (70)%, in some places is absent, sometimes it is removed during sanitation cuts. Constant species: *Cotinus coggygria*, *Euonymus verrucosus*, *Cornus mas*, *Crataegus monogyna*, *Viburnum lantana*. In the shrub layer, there are also young trees.

3. The herbaceous layer (C), with a height of 20-100 cm, is uneven. The spring synusia includes few species and is poorly defined, in large areas, there are no ephemeroïdal and ephemeral plants, the following species have been found: *Corydalis solida*, *Anemonoides ranunculoides*, *Scilla bifolia* and *Cardamine bulbifera*. The summer synusia is richer, with the general coverage varying from 30% to 80%, and in the groups of European smoketree (*Cotinus coggygria* Scop.), the presence of herbaceous plants can be considered insignificant. The summer synusia is dominated by *Poa nemoralis* (AD = 2-4), *Galium schultesii* (AD = 2-3), *Vicia cassubica* (AD = 2-3), in some places, there are abundant clusters of *Convallaria majalis*, *Buglossoides purpureoacerulea*, *Stellaria holostea* and *Carex pilosa*. Constant species, but occurring sporadically, are *Hieracium umbrosum* (rarely forms small groups with AD = 2), *Tanacetum corymbosum*, *Sedum maximum*, *Securigera elegans*, *Lathyrus niger*, *L. vernus*, *L. aureus*, *Scutellaria altissima*. At the level of the herbaceous layer, there are abundant clusters of *Cotinus coggygria*. Young trees and shrubs are also found sporadically in this layer.

In the phytocoenoses of this association, 21 species of fungi have been found: *Agaricus altipes* Peck, *Agaricus bohusii* Bon, *Amanita crocea* (Quél.) Singer, *Boletus aereus* Bull., *Boletus reticulatus* Schaeff., *Boletus subtomentosus* L., *Daedaleopsis tricolor* (Bull.) Bondartsev & Singer, *Gymnopus fusipes* (Bull.) Gray, *Ganoderma lucidum* (Curtis) P. Karst., *Gymnopus peronatus* (Bolton) Gray, *Macrolepiota excoriata* (Schaeff.) Wasser, *Mycena pura* (Pers.) P. Kumm, *Neoboletus erythropus* (Pers.) C. Hahn, *Phellinus igniarius* (L.) Quél., *Russula amarissima* Romagn. & E.-J. Gilbert, *Russula delica* Fr., *Russula grisea* Fr., *Russula rubroalba* (Singer) Romagn., *Russula seperiina* Dupain, *Stereum hirsutum* (Willd.) Pers., *Xerocomellus chrysenteron* (Bull.) Šutara.

Range. The plant communities of sessile oak (*Quercus petraea* (Matt.) Liebl.) with *Hieracium umbrosum* Jord., have been recorded in Hîncești (in the vicinity of Mereșeni, Logănești and Lăpușna communes) and Ialoveni districts (in the vicinity of Văsieni commune).

Conservation value. The conservation value has been assessed as high. In addition to the rare species – *Hieracium umbrosum*, there are other seven plant species protected by the state [Law on the Fund of Natural Areas Protected by the State, 1998; Red Book of the Republic of Moldova, 2015].

Conservation status. The phytocoenoses of this association are protected in the Logănești Nature Reserve of Medicinal Plants, plot 36 (24), and in the "Hîncești Forest" Landscape Reserve, plot 41.

Protection measures. The plant communities of sessile oak with European smoketree are rare and it has been proposed to protect them on their entire range. The species

Hieracium umbrosum Jord., present in these rare plant communities, is found at the eastern limit of the range and it has been proposed to be included in the Red Book of the Republic of Moldova, in the Vulnerable (VU) category.

During the floristic field research, a new species, for the flora of the Republic of Moldova, was identified – *Chamaecytisus polytrichus* M.Bieb.

Conclusions

The association *Hieracio umbrosi-Quercetum petraeae* Pînzaru, Cantemir, Manic et Popescu is characterised by thermo-xeromesophilic, rare phytocoenoses, found on high hills with clayey and sandy soils of the Central Moldovan Plateau. It has been proposed to include this association in the List of Rare Plant Associations of the Republic of Moldova.

The association *Hieracio umbrosi-Quercetum petraeae* Pînzaru, Cantemir, Manic et Popescu ass. nova to the alliance *Quercion pubescenti-petraeae* Br.-Bl. 1932, the order *Quercetalia pubescenti-petraeae* Klika 1933, cl. *QUERCO-FAGETEA* Br.-Bl. et Vlieger in Vlieger 1937.

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HIERACIO UMBROSI-QUERCETUM PETRAEAE ...

Tab. 1. Ass. *Hieracio umbrosi-Quercetum petraeae* ass.nov.

Relevé no.	1	2	3	4	5	6	*7	8	9	10	11	12	K
Altitude (m)	240	210	250	270	275	265	230	250	300	340	360	305	
Aspect	E	E	N	SW	NW	NW	NW	NW	NW	NW	SW	SW	
Slope (°)	20	10	25	8	14	20	14	25	27	7	15	25	
Tree layer coverage (%)	75	75	70	70	70	75	75	80	75	80	75	80	
Shrub layer coverage (%)	30-50	40	55	20-70	35-60	30	15-20	0-35	0-30	0-45	0-50	0-60	
Spring herbaceous layer coverage (%)	15-30	30	50	15	10	-	-	-	-	15	10	-	
Summer herbaceous layer coverage (%)	20-80	30-80	80	15/85	20-65	75	60-80	50-70	40-75	60	40-80	30-70	
Relevé surface (m ²)	600	600	600	600	600	600	600	600	600	600	600	600	
Number of species	74	56	63	70	52	60	53	66	55	66	52	51	
Plots no.	57	57	75	23	36	36	41	41	41	27	34	28	
<u>Characteristic species</u>													
Quercus petraea	4	4	5	5	5	5	5	5	5	5	5	4	V
Hieracium umbrosum	1	+	+	+	+	1	2	2	1	+	1	+	V
<u>Quercion et Quercetalia pubescenti - petraeae</u>													
Sorbus torminalis	+	+	r	+	+	+	+	+	+	+	r	+	V
Sorbus aucuparia	+	r	r	r	r	r	r	+	r	r	r	-	V

<i>Cotinus coggygria</i>	2	2	3	3	3	1	1	2	2	2	3	4	V
<i>Euonymus verrucosus</i>	2	+	1	1	1	+	1	+	+	+	+	+	V
<i>Poa nemoralis</i>	2	2	-	2	2	4	3	4	3	2	3	2	V
<i>Lathyrus niger</i>	1	1	+	+	1	+	1	1	1	+	+	+	V
<i>Vicia cassubica</i>	3	2	3	1	+	1	2	3	3	2	3	3	V
<i>Hieracium sabaudum</i>	1	+	+	+	-	-	+	1	+	+	+	+	V
<i>Melica picta</i>	2	-	1	1	1	+	1	1	1	1	+	+	V
<i>Tanacetum corymbosum</i>	+	+	+	+	1	+	+	+	+	+	+	+	V
<i>Campanula persicifolia</i>	-	-	+	+	+	+	+	+	+	+	+	+	V
<i>Cornus mas</i>	1	2	+	r	+	+	-	r	r	+	r	1	V
<i>Vincetoxicum hirundinaria</i>	+	-	+	-	+	+	+	+	+	+	r	+	V
<i>Galium schultesii</i>	+	-	-	1	1	1	2	3	3	1	2	2	V
<i>Acer tataricum</i>	+	+	1	1	1	+	-	-	-	+	+	+	IV
<i>Securigera elegans</i>	+	+	+	-	-	-	2	2	1	1	1	+	IV
<i>Vicia pisiformis</i>	1	+	+	-	+	-	+	+	-	+	+	+	IV
<i>Viburnum lantana</i>	-	+	1	1	-	+	-	-	-	+	+	1	III
<i>Digitalis grandiflora</i>	r	+	-	r	-	-	+	1	+	-	-	-	III
<i>Silene nutans</i> s.l.	-	-	-	r	+	+	r	r	-	-	-	+	III
<i>Asparagus tenuifolius</i>	-	r	-	r	-	-	-	-	-	r	-	+	II

HIERACIO UMBROSI-QUERCETUM PETRAEAE ...

Prunus spinosa var. spinosa	1	-	-	-	+	-	-	-	-	-	r	-	II
Laser trilobum	+	+	-	-	-	-	-	-	-	-	+	-	II
Buglossoides purpureocaerulea	2	-	-	2	-	-	-	-	1	2	-	-	II
Silene noctiflora	-	-	-	+	-	-	-	-	-	r	r	+	II
Mercurialis ovata	1	-	1	1	+	-	-	-	-	-	-	-	II
Genista elata	-	-	-	r	-	-	+	+	-	-	-	-	II
Rubus canescens	-	+	-	-	-	-	-	-	-	-	-	-	I
Clematis recta	r	-	-	-	-	-	-	-	-	-	-	-	I
Veronica orchidea	-	-	-	-	-	r	-	-	-	-	-	-	I
Chamaecytisus polytrichus	-	-	-	r	-	-	-	-	-	-	-	-	I
<u>Quercu-Fagetea</u>													
Convallaria majalis	2	2	2	2	2	1	2	2	1	2	1	-	V
Glechoma hirsuta	1	1	1	1	1	1	1	2	1	2	+	2	V
Scutellaria altissima	1	+	1	+	-	1	+	+	1	1	+	1	V
Crataegus monogyna	1	+	+	1	+	+	1	+	1	1	+	1	V
Geum urbanum	+	+	+	+	+	+	+	+	+	+	+	+	V
Campanula rapunculoides	+	+	+	+	+	+	1	2	1	1	+	+	V
Cerasus avium	+	+	r	+	+	-	+	+	r	+	-	+	V
Sedum maximum	+	+	+	+	+	+	+	+	+	+	r	+	V

Dactylis glomerata	+	-	-	+	+	+	+	+	+	+	+	1	V
Acer campestre	+	+	+	+	+	+	-	-	-	1	+	1	IV
Lathyrus vernus	1	+	1	-	-	+	+	+	-	+	+	+	IV
Rosa canina	+	r	r	r	r	-	r	r	r	-	-	-	IV
Lapsana communis	+	-	-	+	+	+	+	+	+	+	-	+	IV
Solidago virgaurea	r	-	-	+	+	+	+	+	+	+	-	-	IV
Polygonatum latifolium	1	-	1	2	1	-	1	1	1	-	-	1	IV
Veronica officinalis	-	-	+	-	-	1	+	+	+	-	-	-	III
Chaerophyllum temulum	-	-	+	+	-	+	-	-	-	-	-	-	III
Lactuca quercina	r	r	-	r	-	r	-	-	-	+	-	+	III
Hypericum hirsutum	-	-	+	-	-	-	-	+	+	+	+	+	III
Melampyrum nemorosum	-	-	-	1	-	-	1	-	-	+	-	-	II
Carex contigua	+	+	+	-	-	+	-	+	-	+	-	+	II
Cornus sanguinea	-	+	+	+	-	-	-	-	-	+	-	1	II
Euonymus europaeus	-	+	+	+	-	-	-	-	-	1	-	-	II
Geranium robertianum	+	+	-	-	-	+	-	-	-	+	-	-	II
Lactuca muralis	-	-	+	-	-	-	+	+	-	+	-	+	II
Polygonatum multiflorum	1	-	-	-	-	-	-	-	-	-	-	-	I
Melica nutans	-	-	1	-	-	-	-	-	-	-	-	-	I

HIERACIO UMBROSI-QUERCETUM PETRAEAE ...

Pyrus pyraeaster	r	-	-	-	-	-	-	-	-	-	r	-	I
Cruciata glabra	+	-	-	-	-	-	-	-	-	-	-	-	I
Pseudolysimachion longifolium	r	-	-	-	-	-	-	-	-	-	-	-	I
Fraxinus excelsior	+	-	-	+	-	-	-	-	-	-	-	-	I
Veronica hederifolia	2	1	-	-	-	-	-	-	-	-	-	-	I
Ulmus glabra	-	-	-	-	+	-	-	-	-	-	+	-	I
Campanula trachelium	-	-	+	-	-	-	+	-	-	-	-	-	I
Dryopteris filix-mas	-	-	-	-	-	-	-	r	-	-	-	-	I
Ulmus minor	-	-	-	-	-	-	-	-	-	+	-	-	I
<u>Carpinion et Fagetalia sylvaticae</u>													
Tilia tomentosa	1	+	r	+	+	+	+	+	+	1	1	2	V
Carex pilosa	2	3	1	3	2	1	2	2	1	1	1	3	V
Carex brevicollis	1	1	-	2	1	-	1	1	1	1	+	1	V
Stellaria holostea	1	1	2	1	1	1	2	2	2	1	2	3	V
Scrophularia nodosa	r	r	-	r	r	r	+	+	r	r	r	+	V
Carex digitata	-	-	+	-	+	+	+	+	+	-	+	+	IV
Carpinus betulus	-	1	-	+	+	r	+	+	+	1	1	1	IV
Viola suavis	+	+	+	1	-	1	-	-	-	1	-	+	III
Pulmonaria officinalis	+	+	+	+	-	-	+	-	-	+	-	+	III

Corydalis solida	1	2	2	2	1	-	-	-	-	1	1	-	III
Scilla bifolia	1	1	1	1	1	-	-	-	-	+	+	-	III
Anemonoides ranunculoides	+	1	+	+	+	-	-	-	-	1	-	-	III
Tilia cordata	+	+	-	-	+	+	-	-	-	-	-	-	II
Acer platanoides	+	-	-	+	-	+	-	-	-	-	-	-	II
Cardamine bulbifera	1	2	1	-	-	-	-	-	-	-	-	-	II
Lamium galeobdolon	-	-	1	-	-	-	-	-	-	-	-	-	I
Ranunculus auricomus	-	-	+	-	+	-	-	-	-	-	-	-	I
Galium odoratum	-	-	-	-	-	-	1	2	-	-	-	-	I
Cystopteris fragilis	-	-	-	-	-	-	-	+	-	-	-	-	I
Viola mirabilis	-	-	-	-	-	-	-	-	-	+	-	-	I
Lathyrus aureus	-	-	+	-	-	-	-	-	-	+	1	-	I
Asarum europaeum	-	-	-	-	-	-	-	-	-	+	-	-	I
<u>Trifolio-Geranietea</u>													
Hypericum perforatum	r	r	r	r	r	r	r	r	r	r	-	-	V
Astragalus glycyphyllos	+	r	r	-	r	-	+	+	+	-	+	-	IV
Brachypodium sylvaticum	+	+	-	-	1	1	-	1	+	1	-	-	IV
Veronica chamaedrys s.l.	-	-	-	+	+	+	+	+	+	+	+	+	IV
Clinopodium vulgare	+	r	-	r	-	-	+	+	+	+	+	+	IV

HIERACIO UMBROSI-QUERCETUM PETRAEAE ...

<i>Pilosella bauhinii</i>	-	-	-	-	+	+	+	+	+	-	-	-	III
<i>Trifolium montanum</i>	-	-	-	-	+	-	-	1	1	+	-	+	II
<i>Agrimonia eupatoria</i> s.l.	-	-	r	-	r	-	-	-	+	-	-	-	II
<i>Campanula bononiensis</i>	-	-	-	r	-	-	+	r	-	-	-	-	II
<i>Stachys officinalis</i>	r	-	r	-	-	r	-	-	-	-	-	-	II
<i>Trifolium alpestre</i>	1	+	+	-	-	-	-	-	-	-	-	-	II
<i>Centaurea jacea</i> s.l.	r	-	-	-	-	-	-	r	r	+	-	-	II
<i>Fragaria viridis</i>	-	-	-	-	-	-	-	1	1	+	-	-	II
<i>Securigera varia</i>	-	-	+	-	+	-	-	+	+	-	-	-	II
<i>Trifolium medium</i>	-	-	-	+	-	-	-	-	-	-	-	-	I
<i>Hieracium virosum</i>	+	-	+	-	-	-	-	-	-	-	-	-	I
<i>Filipendula vulgaris</i>	-	-	-	r	-	-	-	-	-	-	-	-	I
<i>Dianthus membranaceus</i>	-	-	-	r	-	r	-	-	-	-	-	-	I
<i>Origanum vulgare</i> s.l.	-	-	-	+	-	-	-	-	-	-	-	-	I
<i>Hieracium umbellatum</i>	-	-	-	r	+	-	-	-	-	-	-	-	I
<i>Iris variegata</i> L.	-	-	-	r	-	-	-	-	-	-	-	-	I
<i>Inula britannica</i>	-	-	-	-	-	-	-	-	-	1	-	-	I
<i>Medicago falcata</i>	-	-	-	-	-	-	-	-	-	+	-	-	I
<i>Inula salicina</i>	-	-	-	-	-	-	-	-	-	-	1	-	I

<u>Aliae</u>													
Fallopia convolvulus	r	-	-	r	-	r	+	+	+	r	+	-	IV
Galium mollugo	+	+	+	-	-	-	+	1	-	-	+	-	III
Torilis ucrainica	-	-	-	-	-	-	-	+	+	-	r	-	III
Prunella vulgaris	-	-	-	r	r	-	-	-	-	-	r	-	II
Torilis arvensis s.l.	+	-	-	-	-	-	-	-	-	-	-	-	I
Robinia pseudacacia	-	-	-	1	-	-	-	-	-	-	+	-	I
Alliaria petiolata	+	-	-	+	-	-	-	-	-	-	-	-	I
Galium aparine	+	-	-	+	-	-	-	-	-	-	-	-	I
Silene alba	-	-	-	-	-	-	r	+	-	-	-	-	I
Aristolochia clematitis	-	-	1	-	-	-	-	-	-	-	-	-	I
Silene vulgaris s.l.	-	-	-	-	-	-	-	-	-	+	+	-	I

Place and date of the relevés: 1-3, Mereșeni commune, Hîncești district, 4-5.VIII.2016, 11.V.2017; 4, Lăpușna commune, Hîncești district, 46°54'31" lt. North, 28°28'24" lg. East, 05.IV.2017, 27.VI.2017; 5-6, Logănești commune, Hîncești district, 46°54'24" lt. North, 28°51'05" lg. East and 46°54'28" lt. North, 28°52'30" lg. East, 05.IV.2017, 27.VI.2017; *7 (typus)-9, Logănești commune, Hîncești district, 46°53'55" lt. North, 28°30'54" lg. East and 46°53'55" lt. North, 28°30'57" lg. East, 05.IV.2017, 14.VII.2017; 10-11, Văsieni commune, Ialoveni district, 46°57'39" lt. North, 28°31'35" lg. East and 46°57'14" lt. North, 28°32'52" lg. East, 06.IV.2017, 03.VIII.2017; 12 - Logănești commune, Hîncești district, SW, 05.IV.2017, 19.IX.2017.