ORIGINAL PAPER

Acidophilous forest-edge communities (*Melampyrion pratensis*) on Kyiv Polissia

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ABSTRACT

Question: What is the syntaxonomical position of the acidophilous forest edges on Kyiv Polissia?
Location: Kyiv city; Buchanskyi and Vyshhorodskyi administrative districts of Kyiv Region, Ukraine.
Methods: A local dataset of 14 vegetation plots stored in the database created by Turboveg software and analyzed using the modified TWINSPAN algorithm within JUICE 7.1 software, is used. For comparison, a shortened synoptic table containing an additional 105 phytosociological relevés from 6 literature sources was performed. Ecological conditions of the distinguished communities were estimated using Ellenberg Indicator Values.
Nomenclature: https://europlusmed.org, Hodgetts *et al.* 2020, https://indexfungorum.org), Mucina *et al.* 2016.
Results. On Kyiv Polissya, acidophilous forest edges pose a significant share of Euro-Siberian and East-European psammophytic xeromesophytic taxa (*Cytisus ruthenicus* var. *zingeri*, *Psephellus sumensis*, *Veronica spicata* var. *pseudoorchidea*). At the same time, these communities are built mainly by wide-range mesotrophic and oligotrophic subacidophilic species, common also with subatlantic forest edges (*Agrostis capillaris*, *Festuca ovina*, *Hieracium umbellatum*, *Melampyrum pratense*, *Peucedanum oreoselinum*, *Veronica officinalis*). In the study area, a new association *Veronico spicatae-Melampyretum pratensis* is described, connected with the margins and glades of subcontinental preboreal pine forests on sandy acidic soils. On the edges of acidophilous oak forests in the southern part of the region, the community *Hieracium murorum-Agrostis capillaris* is distinguished. In the study, we postulate and prove that such forest-edge communities belong to the *Melampyrion pratensis* alliance.
Conclusion. The results of the study complement the understanding of the diversity of *Trifolio-Geranietea sanguinei* class in Ukraine and clarify views on the geographical distribution of the *Melampyrion pratensis* alliance in Eastern Europe.

KEYWORDS
syntaxonomy, margins, *Trifolio-Geranietea sanguinei*, *Melampyrion pratensis*, Ukraine

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INTRODUCTION

In European vegetation science, a regularly asked question regarding the distribution of temperate plant communities is "How far eastwards could we prolong the range of this particular syntaxon?". For thermophilous forest-edge vegetation (*Trifolio-Geranietea sanguinei*), the distribution of Atlantic and sub-Atlantic communities associated with acidophilous oak and beech forests (*Melampyro-Holcetalia mollis*) in Eastern Europe remains unclear (Preislerová *et al.* 2022). In Ukraine, temperate meso-xerophytic forest-edge communities on acidic soils (*Melampyrion pratensis*) are known from western regions, i.e., from the Carpathian mountains and Western Polissia (Iakushenko 2019, 2024). For the regions with a more continental climate, the distribution of these communities remains uncertain.

The data on marginal fringe communities from the class *Trifolio-Geranietea sanguinei* for Kyiv Polissia are extremely scarce. Only one phytosociological relevé attributed to the association *Geranio sanguinei-Trifolietum alpestris* was recently published (Iakushenko *et al.* 2024a). In this region, on the margins and glades of subcontinental pine and pine-oak forests with podzolic soils on sandy sediments, communities possess numerous Sarmatian (Eastern-European) and Euro-Siberian perennials (Povarnitsyn 1959, Miakushko 1978, Andrienko & Shelyag-Sosonko 1983), significant cover of annual root-hemiparasitic myrmecochore *Melampyrum pratense* (Průšová *et al.* 2013), and well-developed moss layer, were noted. These coenoses differ floristically from the known acidophilous forest-edge communities distributed in temperate (atlantic, subatlantic) and subboreal European regions (Mucina *et al.* 2016). The aim of the study is to describe subcontinental herbal-moss forest-edge communities on acidic sandy soils in Kyiv Polissia and identify their syntaxonomical position.

MATERIAL AND METHODS

Study area. According to the geobotanical zoning of Ukraine (Didukh & Shelyag-Sosonko 2003), study area belongs to Kyiv right-bank geobotanical district, Polissian subprovince, Easter-European (Sarmatian) province, European broadleaved forests region. Physico-geographically, these are formed by Dnieper glaciation low sandr and hilly moraine plains on Neogene-Paleogene deposits with sandy podzolic soils (Marynych *et al.* 2003). Climate characteristics (for Borodianka town, 50.76200º N, 30.08700º E): mean temperature 8.8˚C (– 3.6˚C in January, 20.9˚C in July), precipitation sum 609.1 mm (Zepner *et al*. 2020).

Data sampling and analysis. The phytosociological materials were collected in August, 2006, August, 2007, and June, 2009, according to the methods of the Braun-Blanquet school (Westhoff & van der Maarel 1978). The plot area varied from 4–10 to 100 m^2 depending on local conditions. A complete list of vascular plant species with cover values in percents was recorded for each sampling plot. Also, dominant epigeic mosses and lichens were noted, and their cover was estimated. Relevés are stored in the Turboveg for Windows 2.156 database (Hennekens & Schaminée 2001). Ellenberg Indicator Values (EIV) weighted by species cover (Tichý *et al.* 2023) were calculated using Juice 7.1 software package (Tichý 2002). Phytosociological relevés were classified by modified TWINSPAN protocol (Roleček *et al.* 2009) using average Jaccard dissimilarity measure (0.5). Diagnostic species were chosen on the basis of combined frequency (more than 61 %) and modified fidelity measures (more than 30) (Chytrý *et al.* 2002). High rank syntaxa names follow EuroVegCheklist (Mucina *et al.* 2016), newly described syntaxon name is given according to the 4th edition of International Code of Phytosociological Nomenclature (ICPN) (Theurillat *et al.* 2021). Species names for vascular plants follow Euro+Med PlantBase (Euro+Med 2006), for bryophytes – «An annotated checklist of bryophytes of Europe, Macaronesia and Cyprus» (Hodgetts *et al.* 2020), and for lichens – Index Fungorum (www.indexfungorum.org). Chorological floristical elements are considered by (Zając & Zając 2009).

RESULTS

Classification of the vegetation units. In the dataset, 122 vascular plant species, 6 bryophyte species and 1 lichen species are registered. The most frequent species are: *Cytisus ruthenicus* var. *zingeri* (93 %), *Festuca ovina*, *Melampyrum pratense*, *Quercus robur*, *Pleurozium schreberi* (86 %), *Hylotelephium maximum*, *Pinus sylvestris*, *Dicranum polysetum* (71 %), *Achillea millefolium*, *Agrostis capillaris*, *Genista tinctoria*, *Solidago virgaurea* (64 %). Two unequal relevés groups were distinguished (TABLE 1). For the first group, consist of 12 relevés, *Cytisus ruthenicus* var. *zingeri*, *Pleurozium schreberi*, *Festuca ovina*, *Achillea millefolium*, *Genista tinctoria*, *Calamagrostis epigejos*, *Hieracium umbellatum*, *Peucedanum oreoselinum*, *Thymus serpillum*, and *Viola rupestris* are diagnostic species. For the second group (only 2 relevés), *Carex digitata*, *Festuca rubra*, *Hieracium murorum*, *Hylocomium splendens* are diagnostic species. In both groups, *Melampyrum pratense*, *Hylotelephium maximum*, and *Quercus robur* (seedlings or young plants in shrub layer) are frequent species.

TABLE 1. Phytosociological characteristics of acidophilous fringe communities on Kyiv Polissia region

Relevé number	**1**	**2**	**3**	**4**	**5***	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
Relevé area, m^2	25	100	10	10	10	50	50	100	25	30	50	25	6	4
Cover B, %	15	.	15	13	13	7	5	12	.	20	15	15	3	8
Cover C, %	40	70	70	60	50	70	85	30	20	60	50	40	60	40
Cover D, %	60	20	70	70	50	30	5	100	80	80	40	30	15	90
Number of vascular plant species	26	38	24	33	32	31	44	44	27	25	43	31	22	25
Number of moss & lichen species	3	2	4	3	2	1	1	2	2	2	2	2	2	1
D.s. Ass. Veronico spicatae-Melampyretum pratensis ass. Nova														
Cytisus ruthenicus var. *zingeri*	r	2	2	1	r	+	r	2	r	r	r	1	2	.
Genista tinctoria	.	2	.	r	r	2	2	1	r	2	.	+	.	.
Viola rupestris	r	1	.	.	r	R	.	r	r	.	r	+	.	.
Carex ericetorum	r	2	r	r	.	.	.	1	1	.	2	.	.	.
Veronica spicata var. *pseudoorchidea*	.	r	1	2	1	.	.	.	.	2	r	.	.	.
Psephellus sumensis	2	.	.	.	1	.	r	r	2	.	.	.	.	.
Pleurozium schreberi	2	2	4	4	3	3	2	4	4	3	2	1	.	.
Dicranum polysetum	.	2	2	2	2	.	.	3	2	3	2	3	+	.
D.s. community Hieracium murorum-Agrostis capillaris														
Hieracium murorum	.	.	.	.	.	.	.	.	.	.	.	.	2	2
Hylocomium splendens	.	.	.	.	.	.	.	.	.	.	.	.	2	5
Carex digitata	.	.	.	.	.	.	.	.	.	.	.	.	1	r
Festuca rubra	.	.	.	.	.	.	.	.	.	.	.	.	r	r
D.s Al. Melampyrion pratensis & O. Melampyro-Holcetalia mollis														
Melampyrum pratense	2	1	4	2	2	2	.	+	2	.	+	1	r	r
Festuca ovina	2	2	2	2	2	2	2	2	2	2	.	2	2	.
Hylotelephium maximum	.	r	r	r	1	.	r	r	r	.	2	.	2	.
Hieracium umbellatum	.	r	2	.	r	2	r	r	.	2	r	.	.	.
Peucedanum oreoselinum	.	2	.	r	r	2	2	+	.	.	1	2	.	.
Veronica officinalis	.	2	.	r	r	2	r	.	.	.	r	r	.	2
Fragaria vesca	.	1	.	2	r	.	1	.	.	.	2	+	.	2
Campanula rotundifolia	.	.	r	r	.	.	+	r	.	.	+	r	.	r
Agrostis capillaris	.	.	.	2	.	2	2	1	r	r	2	.	2	2
Convallaria majalis	.	.	.	1	2	1	r	+	.	.	.	2	r	r

D.s. Cl. Trifolio-Geranietea sanguinei														
Solidago virgaurea	1	.	2	2	2	+	r	.	.	.	1	1	r	.
Veronica chamaedrys	.	1	.	1	1	2	2	.	.	.	r	.	.	.
Silene viscaria	.	r	r	r	r	.	.	2	.	.	.	.	.	.
Galium verum	.	.	r	r	.	.	r	r	.	r	1	.	.	.
Polygonatum odoratum	.	.	.	r	.	.	2	+	.	2	2	2	r	r
Silene nutans	.	.	.	r	.	.	2	1	2	2	.	.	.	.
Geranium sanguineum	.	.	.	.	r	.	+	r	.	.	2	r	.	.
Anthericum ramosum	.	.	.	.	.	.	2	r	.	1	r	+	.	.
Stachys officinalis	.	.	.	.	1	.	r	.	.	.	2	.	.	.
Campanula persicifolia	.	.	.	r	2	.	.	.	.	.	.	.	.	.
Vicia cassubica	.	.	.	2	2	.	.	.	.	.	.	.	.	.
Trifolium alpestre	.	.	.	2	.	.	r	.	.	.	.	.	.	.
Ajuga reptans	.	.	.	r	.	.	.	.	.	.	r	.	.	.
Vincetoxicum hirundinaria	.	.	.	.	.	.	.	+	.	.	2	.	.	.
D.s. Cl. Koeleio-Corynephoretea														
Thymus serpyllum	2	2	2	.	.	.	.	r	1	2	r	1	.	.
Artemisia campestris	r	+	r	.	.	.	.	.	r	.	.	.	.	.
Dianthus borbasii	.	+	2	.	.	.	.	.	2	r	.	.	.	.
Pilosella officinarum	.	2	r	.	.	2	.	r	2	.	1	+	.	.
Rumex acetosella	.	r	.	.	.	r	.	r	.	.	2	.	.	.
Helichrysum arenarium	r	.	.	.	.	.	.	r	.	.	.	.	.	.
Jasione montana	r	r	.	.	.	.	.	.	.	.	.	.	.	.
Polytrichum piliferum	2	.	2	.	.	.	.	.	.	.	.	.	.	.
Other species														
Calamagrostis epigejos	1	2	.	.	.	r	+	1	1	2	.	1	.	.
Rumex thyrsiflorus	r	r	.	.	.	.	1	r	.	r	.	.	.	.
Berteroa incana	r	r	r	.	.	.	.	.	.	.	.	.	.	.
Oenothera biennis	r	+	.	.	.	.	r	.	.	.	.	.	.	.
Silene vulgaris	2	+	.	.	.	.	.	.	.	.	.	.	.	.
Elytrigia repens	r	.	r	.	.	.	.	.	r	.	.	.	.	.
Dactylis glomerata	r	.	.	.	.	2	2	.	.	r	.	.	.	.
Poa compressa	2	.	.	.	.	.	.	.	.	.	+	.	.	1
Euphorbia cyparissias	r	2	.	.	.	.	.	.	.	.	2	.	.	.
Galium mollugo	.	2	.	.	.	1	.	.	.	.	.	.	.	.
Achillea millefolium	.	r	r	r	r	r	r	.	.	r	r	1	.	.
Hypericum perforatum	.	r	.	.	r	.	+	r	r	.	r	r	.	r
Luzula pilosa	.	r	.	r	1	r	r	1	.	.	r	.	.	.
Linaria vulgaris	.	2	.	r	r	.	+	+	r	.	.	.	.	.
Carex hirta	.	1	r	.	.	.	.	.	.	.	.	.	.	.
Silene latifolia	.	r	.	.	.	.	r	.	.	.	.	.	.	.
Verbascum lychnitis	.	1	.	.	.	.	.	.	.	r	.	.	.	.
Sieglingia decumbens	.	+	.	.	.	.	.	.	.	.	.	2	.	.
Poa angustifolia	.	.	1	.	.	2	.	.	.	.	.	.	.	.
Calamagrostis arundinacea	.	.	.	2	r	2	.	+	.	r	r	.	r	.
Koeleria grandis	.	.	.	2	2	.	.	.	.	r	.	.	.	.
Pteridium aquilinum	.	.	.	r	.	.	+	.	.	.	.	.	.	.
Fallopia convolvulus	.	.	.	.	r	r	.	.	r	.	.	.	r	+
Glechoma hederacea	.	.	.	.	.	r	r	.	.	.	.	.	.	.

Cicerbita muralis	.	.	.	.	.	R	r	.	.	.	.	.	.	.
Taraxacum officinale aggr.	.	.	.	.	.	R	.	.	.	r	.	.	.	.
Vaccinium vitis-idaea	.	.	.	.	.	2	+	.	.	.	.	2	.	.
Impatiens parviflora	.	.	.	.	.	.	+	.	.	.	r	.	.	.
Geum urbanum	.	.	.	.	.	.	r	.	.	.	.	.	r	.
Artemisia vulgaris	.	.	.	.	.	.	r	.	.	.	.	.	.	r
Melica nutans	.	.	.	.	.	.	r	.	.	.	.	.	.	r
Calluna vulgaris	.	.	.	.	.	.	.	+	.	+	.	2	.	.
Rubus saxatilis	.	.	.	.	.	.	.	r	.	.	+	r	.	.
Pulsatilla patens	.	.	.	.	.	.	.	r	r	.	.	.	.	.
Scorzonera humilis	.	.	.	.	.	.	.	r	.	.	.	+	.	.
Galeopsis speciosa	.	.	.	.	.	.	.	r	.	.	.	.	r	r
Dryopteris carthusiana	.	.	.	.	.	.	.	r	.	.	.	.	.	r
Viola arvensis	.	.	.	.	.	.	.	r	.	.	.	.	.	r
Chelidonium majus	.	.	.	.	.	.	.	.	.	r	.	.	r	r
Vaccinium myrtillus	.	.	.	.	.	.	.	.	.	.	+	1	.	.
Trees and shrubs														
Pinus sylvestris	2	.	r	r	r	r	.	r	r	2	.	+	r	.
Quercus robur	.	.	2	r	r	2	2	2	r	+	+	1	r	r
Sorbus aucuparia	.	.	.	.	.	r	r	2	r	r	1	2	r	.
Populus tremula	.	.	2	.	1	.	.	.	.	.	.	+	.	.
Amelanchier ovalis	.	.	.	2	2	.	.	.	.	.	.	+	.	.
Betula pendula	.	.	.	+	.	.	.	.	.	.	+	1	.	.
Frangula alnus	.	.	.	.	.	r	.	.	.	.	r	.	.	.
Acer tataricum		.	.	.	.	.	.	.	.	.	2	.	+	.

Species occur in one relevé only. Rel. 1: *Cladina mitis* d (3), *Clinopodium acinos* (r), *Bromus inermis* (r), *Centaurea stoebe* (r), *Scleranthus annuus* (r), *Trifolium arvense* (r); **rel. 2:** *Plantago lanceolata* (2), *Scrophularia nodosa* (r), *Viola tricolor* (r); **rel. 3:** *Abietinella abietina* d (1), *Securigera varia* (r); **rel. 4:** *Polytrichum juniperinum* d (r); **rel. 5:** *Orthilia secunda* (1); **rel. 6**: *Geranium robertianum* (r); **rel. 7:** *Allium oleraceum* (1), *Ranunculus polyanthemos* (r), *Rubus nessensis* (r); **rel. 8:** *Dianthus pineticola* (r), *Juniperus communis* b (r), *Maianthemum bifolium* (r), *Prunus serotina* b (r), *Potentilla arenaria* (r); **rel. 9:** *Silene otites* (1), *Erigeron acris* (r), *Potentilla argentea* (r), *Atocion armeria* (r); **rel. 11:** *Pimpinella major* (r), *Potentilla alba* (r), *Clinopodium vulgare* (r), *Pimpinella saxifraga* (r), *Verbascum nigrum* (r), **rel. 14:** *Euonymus verrucosa* b (2), *Hypochaeris radicata* (r), *Moehringia trinervia* (+), *Ulmus minor* b (1).

Relevés localities: 1 – 15 August 2006, Ukraine, Kyiv Region, Ivankiv district, Fenevychi, 50.86166° N, 30.04138° E, database relevé nr 264, original relevé nr 3, D. Iakushenko; **2** – 28 August 2007, Kyiv Region, Borodianka district, Klavdieve; forest quarter 69, database relevé nr 388, original relevé nr 460, D. Iakushenko; **3** – 15 August 2006, Kyiv Region, Ivankiv district, Fenevychi; 50.86227° N, 30.04811° E, database relevé nr 244, original relevé nr 1, D. Iakushenko; **4** – 16 August 2006, Kyiv Region, Ivankiv district, Blidcha; database relevé. nr 247, original relevé nr 10, D. Iakushenko; **5** – 15 August 2006, Kyiv Region, Ivankiv district, Blidcha; database relevé nr 246, original relevé nr 9, D. Iakushenko; **6** – 28 August 2007, Kyiv Region, Borodianka district, Klavdieve; forest quarter 71, database relevé nr 386, original relevé nr 458, D. Iakushenko; **7** – 28 August 2007, Kyiv Region, Borodianka district, Klavdieve; forest quarter 70, database relevé nr 167, original relevé nr 459, D. Iakushenko; **8** – 28 August 2007, Kyiv Region, Borodianka district, Teteriv; database relevé nr 171, original relevé nr 465, D. Iakushenko; **9** – 16 August 2006, Kyiv Region, Ivankiv district, Blidcha; forest quarter 25, database relevé nr 269, original relevé nr 11, D. Iakushenko; **10** – 28 August 2007, Kyiv Region, Borodianka district, Teteriv; forest quarter 40, database relevé nr 169, original relevé nr 461, D. Iakushenko; **11** – 28 August 2007, Kyiv Region, Borodianka district, Teteriv; forest quarter 4, database relevé nr 170, original relevé nr 462, D. Iakushenko; 12 – 15 August 2006, Kyiv region, Ivankiv district, Fenevychi. forest quarter 76, 50.87541° N, 30.06180° E, original relevé nr 2, D. Iakushenko; **13** – 17 June 2009, Kyiv city, Pushcha-Vodytsia, vicinities of Lisova Poliana sanatorium, forest quarter 103, database relevé nr 73, original relevé nr 26, D. Iakushenko; **14** – 17 June 2009, Kyiv city, Pushcha-Vodytsia, vicinities of Lisova Poliana sanatorium, forest quarter 103, database relevé nr 72, original relevés nr 25, D. Iakushenko.

Holotype of the association is marked by the asterisk (*).

Based on the differences in species composition (TABLE 2), we assume these two relevés groups of meso-xerophytic forest-edges on acidic soils as two different communities belong to the alliance *Melampyrion pratensis*. The first group we propose to consider as a new association described below, and for the second group we provisionally propose just a "community" level because of the lack of phytosociological materials.

The syntaxonomical positions of the acidophilous forest-edge communities on Kyiv Polissia look as follows:

Trifolio-Geranietea sanguinei T. Müller 1962

Melampyro-Holcetalia mollis Passarge in Theurillat et al. 1995

Melampyrion pratensis Passarge 1979

Veronico spicatae-Melampyretum pratensis Iakushenko et Voitiuk (this paper)

Community *Hieracium murorum-Agrostis capillaris*

TABLE 2. Shortened synoptic table of fringe communities with significant role of *Melampyrum pratense* from Central and Eastern Europe, only species with percentage frequency more than 41 % are shown

Community	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Country	UA	PL	PL	DE	DE	BY	SK
Relevés number	12	12	21	36	13	8	15
Total taxa number	121	136	137	159	93	82	95
Number of taxa shown in the table	53	62	52	50	38	41	40
Cytisus ruthenicus var. *zingeri*	**100**	.	.	.	.	.	.
Genista tinctoria	**75**	.	.	.	.	.	47
Viola rupestris	**67**	.	.	.	.	.	.
Carex ericetorum	58	8	.	3	.	.	.
Veronica spicata	50	33	.	.	.	.	.
Calamagrostis arundinacea	50	.	14	.	.	.	27
Psephellus sumensis	42	.	.	.	.	.	.
Rumex thyrsiflorus	42	.	.	.	.	.	.
Festuca guestphalica	.	**75**	.	.	.	.	.
Hieracium sabaudum	.	.	19	3	**100**	.	40
Knautia arvensis	.	58	38	6	.	**100**	.
Lupinus polyphyllus	.	.	.	.	.	**62**	.
Artemisia vulgaris	8	.	.	.	.	**62**	.
Equisetum pratense	.	.	.	.	.	50	.
Luzula luzuloides	.	.	.	.	.	.	**100**
Cruciata glabra	.	.	5	.	.	.	**93**
Potentilla erecta	.	.	.	.	.	12	**73**
Angelica sylvestris	.	.	.	.	.	.	47
D.s. Al. Melampyrion pratensis							
Melampyrum pratense	**83**	**100**	**81**	28	23	**87**	**100**
Agrostis capillaris	58	**92**	**67**	**67**	**85**	**62**	**67**
Veronica officinalis	58	33	**67**	8	8	25	40
Festuca ovina	**92**	**67**	**81**	28	15	37	.
Fragaria vesca	50	42	52	.	.	**62**	60
Convallaria majalis	50	17	5	6	.	.	7
Campanula rotundifolia	50	33	5	.	.	.	.
Peucedanum oreoselinum	**67**	17	.	.	.	25	.

Hieracium umbellatum	**67**	8	.	.	.	25	.
Hylotelephium maximum	**67**	8	.	3	.	.	.
Holcus mollis	.	8	14	22	23	50	.
Avenella flexuosa	.	25	14	**83**	**62**	.	**80**
Hypericum maculatum	.	42	33	3	.	.	20
Hieracium lachenalii	.	33	48	3	.	.	33
D.s. Cl. Trifolio-Geranietea							
Veronica chamaedrys	50	**67**	**62**	17	15	**87**	53
Silene nutans	42	25	24	.	.	25	.
Solidago virgaurea	**67**	25	19	3	.	.	53
Galium verum	50	**67**	29	.	8	.	.
Polygonatum odoratum	50	8	.	.	.	.	.
Anthericum ramosum	42	8	.	6	.	.	.
Silene viscaria	42	8	.	.	.	.	13
Galium album	.	42	19	14	8	.	.
Geranium sanguineum	42	.	.	.	.	.	.
Other herbal species							
Achillea millefolium	**75**	**67**	**62**	36	23	**100**	53
Pilosella officinarum	58	**67**	14	28	8	50	20
Vaccinium myrtillus	17	17	38	8	8	25	**87**
Dactylis glomerata	33	25	19	25	31	**87**	13
Hypericum perforatum	58	**83**	**71**	25	31	**62**	47
Pimpinella saxifraga	8	25	19	6	8	50	47
Calluna vulgaris	25	8	10	19	.	25	**67**
Rumex acetosella	33	25	19	6	.	25	7
Vaccinium vitis-idaea	25	17	10	.	.	25	53
Elytrigia repens	25	17	5	14	15	50	.
Poa angustifolia & pratense	17	**92**	**67**	36	46	75	.
Calamagrostis epigejos	**67**	17	38	14	15	.	.
Luzula pilosa	58	8	19	3	.	**62**	.
Euphorbia cyparissias	25	58	24	.	.	12	.
Sieglingia decumbens	17	42	.	3	.	12	.
Thymus serpyllum	**67**	50	.	.	.	.	.
Dianthus carthusianorum	.	42	.	.	.	.	.
Anthoxanthum odoratum	.	**67**	**67**	14	23	50	7
Festuca rubra	.	58	10	39	15	.	47
Viola canina	.	50	38	6	.	.	27
Linaria vulgaris	50	.	.	6	8	12	13
Rubus idaeus	.	.	.	25	8	50	.
Trees and schrubs							
Pinus sylvestris	**75**	17	29	39	32	37	7
Sorbus aucuparia	58	42	**62**	8	15	25	13
Populus tremula	25	33	5	15	48	37	20
Betula pendula	25	8	10	39	23	25	47
Frangula alnus	17	17	33	21	16	12	13
Quercus robur	**83**	**92**	57	**90**	**64**	37	.
Quercus petraea	.	33	52	9	8	.	20
Fagus sylvatica	.	8	10	21	48	.	20
Mosses and lichens							

Pleurozium schreberi	**100**	**92**	**71**	**67**	8	**75**	60
Dicranum polysetum	**75**	25	19	6	8	12	.
Brachythecium albicans	8	58	14	19	8	.	.
Plagiomnium affine	.	58	38	25	8	.	.
Scleropodium purum	.	42	48	58	38	.	.
Hypnum cupressiforme	.	**67**	19	14	8	.	.
Brachythecium rutabulus	.	17	.	33	46	.	.
Hylocomium splendens	.	8	14	.	.	50	7

Sources: 1 – Ukraine (UA), *Veronico spicatae-Melampyretum pratensis* Iakushenko et Voitiuk 2025, this article, Table 1, relevés 1–12; 2 – Poland (PL), *Lathyro montani-Melampyretum pratensis* Passarge 1967 *thymetosum serpylii* (Brzeg 2005, Table 15, column 4); 3 – Poland (PL), *Lathyro montani-Melampyretum pratensis* Passarge 1967 *typicum* (Brzeg 2005, Table 15, column 5); 4 – Germany (DE), *Lathyro linifolii-Melampyretum pratensis* Passarge 1967 (Dengler & al. 2006, Table 4, relevés 32–67); 5 – Germany (DE), *Melampyro pratensis-Hieracietum sabaudi* T. Müller ex Passarge 1994 (Dengler & al. 2006, Table 4, relevés 68–80); 6 – Belarus (BY), community with *Melampyrum pratense* [*Melampyrion pratensis* Passarge 1979] (Iakushenko 2017, Table 3); 7 – Slovakia (SK), *Cruciato glabrae-Melampyretum pratensis* Passarge 1979 (Valachovič & Hegedüšová Vantarová 2014, Table 8, column 14).

Description of syntaxa. In this paper, a new association within the alliance *Melampyrion pratensis* is described. Additionally, one community is characterised based on two phytosociological relevés.

Veronico spicatae-Melampyretum pratensis Iakushenko et Voitiuk *ass. nov. hoc loco*

Holotypus: Table 1, relevé number 5, *holotypus hoc loco.*

Diagnostic species: *Cytisus ruthenicus*, *Festuca ovina*, *Genista tinctoria*, *Melampyrum pratense*, *Veronica spicata*, *Viola rupestris*. Constant species: layer c – *Melampyrum pratense*, *Hylotelephium maximum*, *Solidago virgaurea*; layer b – *Pinus sylvestris*, *Quercus robur*; layer d – *Dicranum polysetum.* Dominant species: layer c – *Melampyrum pratense* (cover value 10–30 %), layer d – *Dicranum polysetum*, *Pleurozium schreberi* (FIGURE 1). Vascular species number per plot: 33,25.

Geographical range: northern regions of Ukraine – Kyiv Polissia, Left-Bank (Chernihiv) Polissia (?). Habitat characteristics: communities are formed on margins and glades of open to semi-shade sparse pine forests in fresh, average moisture conditions, on sandy podzolic acidic soils. EIV: Light (L) – 6.9, Temperature (T) – 5.2, Continentality (C) – 4.5, Moisture (M) – 5.1, Soil Reaction (R) – 2.9.

It should be admitted, some protected vascular plant species occur in communities of the association *Veronico spicatae-Melampyretum pratensis*. In particular, *Pulsatilla patens* is mentioned in Annex I of the Convention on the conservation of European wildlife and natural habitats (Bern Convention) and in Annex II of the Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EU Habitats Directive) (https://eunis.eea.europa.eu/species/177045). Three species, *Juniperus communis*, *Scorzonera humilis*, and *V. spicata* var. *pseudoorchidea* (as *Veronica paczoskiana*), are mentioned in the List of regional rare plants for Kyiv region (Andrienko & Peregrym 2012).

Community *Hieracium murorum-Agrostis capillaris* (non *Veronico officinalis-Hieracietum murorum* Klauck 1992) (FIGURE 2). Frequent species: layer c – *Agrostis capillaris*, *Carex digitata*, *Chelidonium majus*, *Convallaria majalis*, *Fallopia convolvulus*, *Festuca rubra*, *Hieracium murorum*, *Melampyrum pratense*, *Polygonatum odoratum*, *Hylotelephium maximum*; layer b – *Quercus robur*; layer d – *Hylocomium splendens*. Dominant species: layer c – *Hieracium murorum* (cover value 12–15 %), layer d – *Hylocomium splendes* (cover value up to 80 %). Vascular species number per plot: 23,0. Geographical range: southern part of Kyiv Polissia. EIV: Light (L) – 6.0, Temperature (T) – 5.2, Continentality (C) – 4.8, Moisture (M) – 5.2, Soil Reaction (R) – 3.6.

FIGURE 1. General view on community of association *Veronico spicatae-Melampyretum pratensis*, with *Psephellus sumensis* prevails on the plot. 16 August 2006, Kyiv Region, Blidcha. Photo by D. Iakushenko.

FIGURE 2. General view on community *Hieracium murorum-Agrostis capillaris*. Kyiv city, Pushcha-Vodytsia, 17 June 2009. Photo by D. Iakushenko.

DISCUSSION

Species composition. In contrast with forest-edge communities on acidic sandy soils from Central Europe (Passarge 1994, Brzeg 2005, Dengler *et al.* 2006), at margins and glades of subcontinental pine forests in Kyiv Polissia, distinct groups of Euro-Siberian species (*Veronica spicata*, *Viola rupestris*), and of Eastern-European species (*Psephellus sumensis*, *Cytisus ruthenicus*, *Koeleria grandis*) occur. Some taxa of particular phytogeographical interest that appear frequently in acidophilous forest-edge communities should be discussed briefly.

In peripheral parts of the species range, *V. spicata* occurs in open grassland habitats, considered the remnants of late glacial steppe-tundra community (Pigott & Walters 1954, Krahulec *et al.* 1986, Wilson *et al.* 2000, Löbel & Dengler 2007, Buono *et al.* 2021), thus in central part of range, besides wide diapason of meadow steppes (Willner *et al.* 2019), it also frequently occurs in continental hemiboreal coniferous forests (Freitag *et al.* 2015). In the Middle Dnieper area, in light, sparse pine forests and forest margins, *Veronica paczoskiana* (Klokov 1976, 1980) occurs, considered as a forest ecotype of *V. spicata* (Albach *et al.* 2025), currently known as *V. spicata* var. *pseudoorchidea* (Mosyakin *et al.* 2023). Specimen we observed during field research on study area were determined as *V. paczoskiana*. Nevertheless, according to Recommendation 10F of the ICPN, authors choose name-given taxon not on infra-specific but on specific rank, i.e. *Veronica spicata*, to avoid taxonomic confusion.

On margins of pine forests at Kyiv Polissia, *Chamaecytisus pineticola* was described (Ivchenko & Shevera 1992). Currently this taxon is considered as *Cytisus ruthenicus* var. *zingeri* (Sennikov & Tikhomirov 2024 a). In northern regions of Ukraine, *C. ruthenicus* var. *zingeri* is given as a diagnostic species for the open species-rich pine forests enriched in light-demand herbal species described as association *Chamaecytiso zingeri-Pinetum sylvestris* (Vorobyov *et al.* 1997), further recognised as a synonym of association *Peucedano-Pinetum* (Chorney *et al.* 2019). It is suggested, *C. ruthenicus* var. *zingeri* is affiliated with pine forests on sandy soils, and typical *C. ruthenicus* is related to open steppic habitats (Shevera 1989). During our field studies, such plants were previously identified as *C. zingeri*, and further merged in a dataset with *C. ruthenicus*. For the Middle Dnieper area including Kyiv Polissia region, *C. ruthenicus* is a common plant (Visiulina 1954, Czopik *et al.* 1998, Fedoronchuk 2019, Sennikov & Tikhomirov 2024 b). Based on just constancy measures and a comparative synoptic table, C. ruthenicus seems to be an adequate choice for a name-giving taxon for the new association described in this article, emphasising phytogeographical features within the *Melampyrion pratensis* alliance. However, in broader context, coenological amplitude of this species is too wide including open pine forests (*Dicrano-Pinion sylvestris* and *Festuco-Pinion sylvestris*), thermophilous oak forests (*Quercion petraea*), steppic dry grasslands (*Festucion valesiacae*) and open sands (*Koelerion glaucae* and *Festucion beckeri*) (Shevchyk *et al.* 1996, Onyshchenko 2006, Didukh *et al.* 2011).

Sandy terraces of Kyiv Polissia is a westernmost part of a range for *Psephellus sumensis* in Ukraine (Dobrochaeva 1965, https://www.gbif.org/uk/species/3137817). This species is distributed east of vicinities of Radomyshl and Malyn in Zhytomyr region (Orlov 2005). Mention for Poliskyi natural reserve (Andrienko *et al.* 1986) located about 50 km to the west, now considered based on misidentification (Orlov *et al.* 2013). As a light-demand species, *P. sumensis* in study area is associated with subcontinental acidophilous hemiboreal pine forests and further south occupied open sandy habitats (Dubyna *et al.* 2020). In the analyzed dataset, species frequency (42 %) is insufficient to consider it as diagnostic for the association. However, field observations incline us to believe *P. sumensis* in Polissia is associated with forest margins rather than with close forest communities. Here, close to western limit of range, it is rather being “pushed out” from pine forest with sparse canopy to semi-open (forest margins) or even open (sand dunes) habitats. This problem could be solved in case of involvement of new phytosociological materials from Left-Bank Polissia.

Another species related to open forest glades and margins, *Koeleria grandis* (Klokov 1980), occurs sporadically in Ukrainian Polissia (Prokudin *et al.* 1977). The frequency of this Eastern-European (Sarmatian) species in analyzed dataset is low, nevertheless we assume *K. grandis* might be more significant for community identification.

Carex ericetorum is a common species in the region (Bortniak 1984, Czopik *et al.* 1998) on pine forests, heathans and secondary *Nardus stricta* swards. Occurence of this xeromesophytic sedge in described communities emphasized acidophilic and oligotrophic soil properties at the sites.

In the region, several fescue species occur on peripheral zone of Scots pine forests. *Festuca ovina* is a common, widely distributed species (Czopik *et al.* 1998) in the forests (*Dicrano-Pinion*, *Quercion petraea*, and *Festuco-Pinion sylvestris*). *F. polesica* occurs sporadically, it forms communities belong to the alliance *Koelerion glaucae* (with psammophyte species as *Corynephorus canescens*, *Koeleria glauca*, *Dianthus arenarius*, *D. borbasii*, *Jurinea cyanoides*, *Linaria genistifolia*, *Silene otites*, *Tragopogon floccosus*, etc. in herbal layer and *Cladina* sp. div., *Polytrichum piliferum*, etc. in moss-lichen layer) on open sands (Vicherek 1972, Andrienko 1994). At the contact zone between *F. ovina* and *F. polesica* populations in the northern Ukraine, new nothospecies *Festuca* x *polovina* was described (Bednarska 2009, Bednarska & Nachychko 2018). Also we noticed communities formed by *F. trachyphylla* in disturbed sites along roads and trails, in the forests under high recreation pressure (mainly in the southern part of Kyiv Polissia). In analyzed dataset, only relevés consisting of *F. ovina* were included.

For the second association, *Hieracium murorum* L. aggr. is a remarkable species occurs sporadically in the vicinities of Kyiv (Shynder *et al.* 2024). The rapid distribution of the species (https://www.gbif.org/uk/species/8605056) in planar part of Ukraine indicates active dynamics in change of the south-eastern limit of range.

Syntaxonomical position. Regardless of marginal placement on forest-edges and glades, and prevalence of *Melampyrum pratense*, syntaxonomical position of described communities at the alliance level was uncertain. Very first supposition considered *Violion caninae* because of secondary origin of these communities, acidic soils, high frequency of *Agrostis capillaris*, *Campanula rotundifolia*, *Carex erocetorum*, *Festuca ovina*, *Luzula pilosa*, and *Veronica officinalis*, minor role of thermophilous species of *Geranion sanguinei*, and well-developd moss layer. Further, *Koelerion glaucae* was taking into account considered ecological features and floristical composition: some psammophyte species (*Artemisia campestris*, *Dianthus borbasii*, *Pilosella officinarum*, *Rumex acetosella*, *Thymus serpyllum*, etc.) occur frequently here. Similar psammophyte plant communities with occurrence of *Thesium ebracteatum* were described on the left-bank sandy terraces of the Forest-Steppe part of Middle Dnieper area (Shevchyk *et al.* 2023). Those communities share a lot of species with pine forests, thermophilous forest-edges and continental sand dunes distributed in the northern Ukraine: *Calamagrostis epigejos*, *Carex ericetorum*, *Dianthus borbasii*, *Galium verum*, *Hieracium umbellatum*, *Peucedanum oreoselinum*, *Psephellus sumensis*, *Solidago virgaurea*, *Veronica spicata*, etc. The most essential differences are occurrence of *Festuca beckeri* instead of *F. ovina*, and lack of *Melampyrum pratensis*. Also species from the alliance *Festucion beckeri-Sempervivum ruthenicum* and *Stipa borysthenica* – has a significant frequency in it (Shevchyk *et al.* 2023). So, except of *Melampyrion pratensis*, nothing left to choose from.

Phytogeographically, natural vegetation of the study area belongs to lowland species-poor acidophilous oak and mixed oak forests (Shelyag-Sosonko *et al.* 1982, Bohn *et al.* 2000–2003). Comparison with phytosociological materials of acidophilous forest-edges *Melampyro-Holcetalia mollis* from Continental and Atlantic biogeographical regions of Europe (Hilbig *et al.* 1982, Klauk 1992, Passarge 1994, Reichhoff & Warthemann 2003, Dengler *et al.* 2006, Royer 2015) confirmed placement of described in this article communi-

ties into *Melampyrion pratensis* alliance. Coenoses of *Veronico spicatae-Melampyretum pratensis* fit main ecological, structural, and biogeographical attributes of this alliance (Preislerová *et al.* 2024). Despite a lot of characteristic species are lack on study area, common species of wider ecological amplitude with affinity to forest margins occurs frequently (TABLE 2).

The association *Lathyro montani-Melampyretum pratensis* has been reported for Ukraine (Iakushenko 2019) based on obvious misinterpretation of the position of communities with *Melampyrum pratense* on the edges of pine forests, commonly distributed in the northern and north-western regions. Geographically, described communities are located too far in south-east direction from the typical communities attributed as *Lathyro montani-Melampyretum pratensis* (Brzeg 2005). Floristical differences are also clear. The range of diagnostic species, *Lathyrus montanus*, does not reach Ukraine, closest localities of the species are detected in the eastern Poland (Tworek 2017) and in Belarus (Kozlovskaya & Parfyonov 1972, Semerenko & Savchuk 2015). Studied in this paper slightly acidophilous and psammophilous forest-edge communities with *Melampyrum pratense* on sediments of Dnieper glaciation are enriched in Euro-Siberian species (*Artemisia campestris*, *Carex ericetorum*, *Cytisus ruthenicus*, *Festuca ovina*, *Hylotelephium maximum*, *Koeleria grandis*, *Polygonatum odoratum*, *Psephellus sumensis*, *Pulsatilla patens*, *Rubus saxatilis*, *Silene nutans*, *Solidago virgaurea*, *Veronica spicata*, *Viola rupestris*) and are characterized by the lack of *Hieracium lachenalii*, *H. sabaudum*, *Avenella flexuosa*, and *Hypericum maculatum* (TABLE 2). Such communities could not be assigned with association *Lathyro montani-Melampyretum pratensis*. This arguments encouraged us to propose a distinct position for the communities from Kyiv Polissia, and describe a new association *Veronico spicatae-Melampyretum pratensis* within *Melampyrion pratensis*.

Another similar association, *Sedo maximi-Peucedanetum oreoselini*, known from Poland (Brzeg 2005), also commonly occurs on sandy soils in the north-western part of Ukraine (Volyn, Rivne, and Zhytomyr Regions) (Iakushenko 2019). It differs from the communities described in this paper by significantly lower frequency of *Melampyrum pratense*, lack of *Cytisus ruthenicus*, and by high constancy and cover values of *Peucedanum oreoselinum* (see Brzeg 2005:158, Table 12).

Communities with *Hieracium murorum* in Ukraine were previously assigned with the association *Veronico officinalis-Hieracietum murori* (Derzhypilsky *et al.* 2011, Iakushenko 2019). This suggestion did not respond with the phytogeographical patterns, as the alliance *Teucrion scorodoniae* is characterised by an Atlantic distribution type (Preislerová *et al.* 2022). Currently, marginal coenoses from the Ukrainian Carpathians associated with acidophilous *Luzulo-Fagion* and *Agrostio-Quercion petraea* forests at the low altitudes (800–1100 m a.s.l.) are proposed to be considered as a community *Hieracium murorum-Hieracium sabaudum* within *Melampyrion pratensis* alliance (Iakushenko 2024b). On plain areas in the northern Ukraine (Right-Bank Polissia), *H. murorum* occurs in acidophilous oak and oak-pine forests. For now, subcontinental forest margins with significant role of this species we propose to called "community *Hieracium murorum-Agrostis capillaris*" (TABLE 1: relevé 13–14), perhaps further these communities should be described as a separate association. In planar regions of Poland, *H. murorum* has a wide ecocoenological amplitude and occurs in different forest and forest-edge communities, associaion *Veronico officinalis-Hieracietum murori* also does not recognized (Brzeg 2005).

Geographical range. For the association *Veronico spicatae-Melampyretum pratensis*, the only limit we could outline clearly is the western limit of the range. It could be connected with the limit of Dnieper glaciation deposits (Marynych 1963) and also with the eastern limit of *Lembotropis nigricans* distribution range in Ukrainian Polissia (e.i. east to the north-western part of Zhytomyr region). Northern limit should coincide with the northern limit of *Cytisus ruthenicus* distribution area in a central part of Belarus (Sennikov & Tikhomirov

2024b). For left-bank Polissia of Ukraine, we have scarce phytosociological data on acidophilous forest-edge communities and could only assume based on floristic composition of pine and oak-pine forests (Kotov 1941, Muliarchuk 1970, Pryadko 2004, Panchenko 2005), that association *Veronico spicatae-Melampyretum pratensis* distributed here on sandy terraces on Dnieper-Desna interfluve, and, hypothetically speculate, up to the state border in the east. The southern limit of the association could be connected with the south limit of pre-boreal (*Dicrano-Pinion sylvestris*) and northern – of continental (*Festuco-Pinion sylvestris*) coniferous forests on sand terraces in the Middle Dnieper area. As regards the community *Hieracium murorum-Agrostis capillaris*, its distribution range seems to be connected with areas of subcontinental oak-pine forests east of *Teucrion scorodoniae* range in the wide belt between the Vistula and Dnieper rivers (eastern part of Poland, north-western and northern regions of Ukraine).

CONCLUSIONS

On Kyiv Polissya, acidophilous forest edges and glades of subcontinental preboreal pine forests on sandy fluvioglacial deposits of the Dnieper glaciation are represented by communities with a significant share of Euro-Siberian and East-European psammophyte xeromesophytic species, some of these species are located at this area near the western border of their range. At the same time, these communities are dominated by wide-range mesotrophic and oligotrophic subacidophilous species, which are considered as diagnostic species for the *Melampyrion pratensis* alliance. A new association *Veronico spicatae-Melampyretum pratensis* is described, which replaces the Central-European association *Lathyro montani-Melampyretum pratensis* in the subcontinental climate of Eastern Europe. In the context of the decrease of old-growth pine forests areas and their replacement by young forest plantations, it is critically important to maintain forest edges and glades as places for existence of numerous light-demand species with specific needs in soil disturbance regime, to maintain floristic diversity.

On the edges of significantly transformed acidophilic oak forests on sandy soils in the southern part of the region, communities with the participation of *Hieracium murorum* were noted, which is proposed to be called as "community *Hieracium murorum-Agrostis capillaris*". Due to the lack of phytocoenotic materials, the syntaxonomic position and general distribution of these coenoses remain not clarified definitely. Probably, the presence of these communities indicates a rapid progressive expansion of *H. murorum* in the studied area in the southeast direction, which is associated with climatic changes that are more likely to manifest themselves on the forest edges than in a closed forest environment.

The results of the study complement the understanding of the diversity of *Trifolio-Geranietea sanguinei* class in Ukraine and clarify views on geographical distribution of the *Melampyrion pratensis* alliance in the Eastern Europe.

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РЕЗЮМЕ

Якушенко, Д.М., Войтюк, Ю.О. Ацидофільні узлісні угруповання (*Melampyrion pratensis*) Київського Полісся. *Чорноморський ботанічний журнал* **21** (3): 219–235. https://doi.org/10.32999/ksu1990-553X/2025-21-3-2

В Україні мезоксерофітні узлісні угруповання помірного клімату на кислих грунтах союзу *Melampyrion pratensis* відомі з західних регіонів, але в областях з більш континентальним кліматом поширення таких угруповань лишалося до цього часу не з'ясованим. На Київському Поліссі ацидофільні узлісся і галявини субконтинентальних пребореальних соснових лісів на піщаних воднольодовикових відкладах Дніпровського зледеніння представлені угрупованнями із значною участю євросибірських (*Veronica spicata* var. *pseudoorchidea*, *Viola rupestris*) і східноєвропейських (*Cytisus ruthenicus* var. *zingeri*, *Koeleria grandis*, *Psephellus sumensis*) псамофітних ксеромезофітів, частина з яких знаходиться в регіоні поблизу західної межі ареалу. Водночас у складі таких угруповань переважають широкоареальні мезотрофні і оліготрофні субацидофільні види, які вважаються діагностичними для союзу *Melampyrion pratensis* (*Agrostis capillaris*, *Festuca ovina*, *Hieracium umbellatum*, *Melampyrum pratense*, *Peucedanum oreoselinum*). Характерним є добре розвинений покрив зелених мохів (*Dicranum polysetum*, *Pleurozium schereberi*). Описана нова асоціація *Veronico spicatae-Melampyretum pratensis* Iakushenko et Voitiuk з «сарматським» характером поширення, яка заміщує середньоєвропейську асоціацію *Lathyro montani-Melampyretum pratensis* у субконтинентальному кліматі Східної Європи. У південній частині регіону по узліссях значно трансформованих ацидофільних дубових і дубово-соснових лісів на багатших супіщаних грунтах відмічені угруповання за участю *Hieracium murorum*, які через недостатню кількість фітоценотичного матеріалу запропоновано попередньо називати «угруповання *Hieracium murorum-Agrostis capillaris*». Для підтримки флористичної різноманітності у ландшафтах зандрових і моренно-зандрових рівнин Київського Полісся забезпечення утримання в лісових масивах узлісь і галявин як місць виростання численних світлолюбних видів із специфічними вимогами є критично необхідним. Результати дослідження доповнюють уявлення про різноманітність угруповань класу *Trifolio-Geranietea sanguinei* в Україні та розширюють знання про географічне поширення союзу *Melampyrion pratensis* у Східній Європі.

Ключові слова: синтаксономія, узлісся, *Trifolio-Geranietea sanguinei*, *Melampyrion pratensis*, Україна.