References

1. *Isikov V.P., Gelyuta V.P., Popkova L.L.* Rasprostraneniye i sovremennoye sostoyaniye populyatsij *Triticum boeoticum* Boiss.(*Poaceae*) v Krymu // Ukr.botan.journ. – 2005. – 62, № 1 – P. 56 – 65.

2. *Maslov I.I., Krainyuk Ye.S.* Pshenitsa beotijskaya ((*Triticum boeoticum* Boiss. *Poaceae* Barnh.) v Baidarskoj doline (Krym) // Bull.Nikit.botan.sada. – 1989. – Vyp. 70. – S. 10-13.

3. *Nikiforov A.R., Korzhenevsky V.V.* Izucheniye redki vidov flory Gornogo Kryma *Silene jailensis* (*Caryophyllaceae*) i *Triticum boeoticum* Boiss.(*Poaceae*) s tselju ih sohraneniya v usloviyah kultury *ex situ* // Bull.Nikit.botan.sada. – 2004. – Vyp.90. – S. 16 – 19.

4. *Nikiforov A.R., Korzhenevsky V.V., Voloshyn R.A.* Tsenoticheskaya priroda i genezis *Triticum boeoticum* Boiss.(*Poaceae*) v rastitelnosti Baidarskoj doliny Gornogo Kryma // Naukovi zapysky Ternopolskogo universiteta. - № 2. – 2004. – S. 251-254.

5. *Nikolayev Ye.V., Izotov A.M.* pshenitsa v Krymu. – Simferopol: SONAT, 2001. – 288 s.

6. *Tsvelyev N.N.,* Zlaki SSSR. – L., 1976. – S. 163.

7. *Yanushevich Z.V.* Kulturniye rasteniya Severnogo Prichernomorja (paleobotanicheskiye issledovaniya). – Kishinyov, “Shtiintsa”, 1986. – 91 s.

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Methods of rare species protection usually function as preservation of plant localities and minimization of anthropogenic influence on these ecotopes. These methods are not always effective concerning rare species of allochthonic origin. Study case of such a cultivar is *Triticum boeoticum* (Boiss.). North edge of this cultivar disjunctive area occupies regions of Steppe, Mountain and Piedmont Crimea. Present isolation of this wheat population in the Crimea is historically grounded. All well-known habitats have anthropogenic origin while townships where these plants were found, are nothing but settlements along ancient trade roads. These circumstances permit to suppose allochthonic origin of this cultivar in the Crimea. Special combination of factors, non-typical for the Crimean nature is necessary for growing of the studied wheat cultivar. These factors are formed sporadically being influenced by different local anthropogenic changes of environment.

Key words: *the Crimea; Triticum Boeoticum (Poaceae); origin; protection.*

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TAXONOMIC DIVERSITY OF FLORAL COMPLEXES ON THE TERRITORY OF GRAZING ECOSYSTEMS IN SOUTHEAST OF UKRAINE

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Introduction

One of the most important task for present science is revealing the scale and degree of changes in natural ecosystems caused by anthropogenic effects, determination the ways of balancing usage and renewal of natural resources, their renaturalization and return into the field of rational nature management. Grazing ecosystems, as historically generated under conditions of traditionally economical usage anthropogenic complexes of landscape, are of

great importance for formation and preservation of biodiversity. Southeast of Ukraine (Donetsk and Lugansk regions) – common anthropogenic transgenerated area where a high degree of tilled territory and unsystematic grazing determine natural steppe and meadow phytocenosis as they are [6]. Investigation of flora and vegetation in that area permitted to assess current status and develop bases of renewal and rational management of grazing ecosystems in Southeast of Ukraine [20]. This article presents analysis of taxonomic diversity of floral complexes of grazing ecosystems in that region.

Objects and research methods

Considering vegetation cover as an integral form of structural and functional organization of phytobiota from two sides (qualitative – floristic, and quantitative – phytocoenotical), it serves as a theoretical ground for investigations [14]. Basic category is considering phytosystem as an actual unlimited, relatively discrete, structural and functional element of vegetational cover, that is specimens, populations, cenosis, ecotopological floral complees, floras. Within our investigations we take "ecosystem" as "complex of coenotic heterogenic phytocenosis, developed under similar conditions of macroecotope and edaphotope". Grazing ecosystems are considered as natural and anthropogenic ecosystems, their status and development totally depend upon external factors (regulated and unregulated cattle pasture, mowing and etc.) [20]. According to concept of B.V. Vinogradov [5] such ecosystems belong to half-natural and transformed section of ecosystems. Investigated region consists of steppe and meadow lands out of protected territories, which play a great role for preservation of general biodiversity in the regional phytobiota [18, 19]. Southeast of Ukraine is situated in the subzone of rich in herbs-fescue-mat-grass steppes of Priazovsko-Chernomorskaya subprovince of Prichernomorskaya (Pontic) steppe province in European-Asian steppe region [15]. Total area of natural steppes and meadows in Donetsk region makes 705,9 thousand ha (14% of total area), while 652,3 thousand ha are used for grazing, 53,6 thousand ha – for haymowing [1].

Developed for Southeast of Ukraine classification of natural ecosystems [7] is based on methodological approaches, which determine ecotope ("actual ecosystem of topological (landscape) level… in geobotany it is phytocenosis" [9]), as the minimal key unit for classification [10, 11]. The main ecosystems of that region were marked out based on macroecotopical (water divide, ravine and gully, above-flood-terraced, flood) [2] and edaphotopical (advanced chernozems, eroded chernozems on clay, granite, limestone, sandstone and chalk outcrops and etc., sandy and meadow soils) connection applying of developed syntaxonomical scheme of the regional vegetation [17]. 10 of these ecosystems are grazing: 6 steppe (forming on watershed on advanced chernozem, ravine and gully (on slopes) – on eroded chernozem on clay, ravine and gully – on eroded chernozem on granite outcrops, ravine gully – on eroded chernozem on limestone outcrops, above-flood –terraced – on sandy soils, above-flood-terraced – on eroded chernozem on chalk outcrops) and 4 meadow (ravine and gully steppificated – on eroded chernozem, actual flood – on meadow soils, flood marsh – on over-moistened soils and flood – on salted soils).

Flora of grazing ecosystems is an anthropogenic variant of the regional flora, that unites types of anthropogenic and transformed floras: exhausted flora capable to renew and tame flora of half-natural ecotopes, which must consist of cultural or introduced plant species. In functional scheme of pointed forming of anthropogenic flora transformation they are balancing given loss [2, 3]. Flora is considered as a complex of cultivars, presented on that territory that is a system of local populations of all plant species.

So long as flora has geographical nature, but not topological or typological one, topological units of flora are named as floroecotopological complexes (or ecotopological florocomplexes). Ecotopological florocomplexes, by V.V. Novosad [16] with notes of A.A.

Kagala [12, 13], are floristic elements of internal landscape (topologic) level, formed due to complex of local plant populations with complementary adaptive properties; they form cenosis based on ecological correspondence to growing conditions. Classification of elemental floras into different topological branches by their quality [8] makes it possible to analyze ecotope parameter variations and dynamics of space and cultivar structure of cenosis. It`s possible to say if flora is considered as a system of interacting and simultaneous evolution of the local populations, therefore phytocenosis can be taken as a vegetation component of ecotopes.

Hence objects of our investigations were ecotopological floral complexes of grazing ecosystems, forming under certain conditions of macro- and edaphotope (for instance, floral complex of steppe ecosystems on watersheds with chernozem soil).

Researches had been carried out on Southeast of Ukraine since 1998 till 2001 applying route method with thorough half-stationed investigation of floras-isolates, diversity of the vegetation cover within them was also taken into account. According to inspections annotated summaries of plant cultivars of floral complexes from 10 variants of grazing ecosystems were made.

Taxonomic diversity was considered as a diversity of vascular plants according to phylogenetic similarity; it was determined due to its quantity and spectrum of taxons from different ranks – cultivar, family, order, class, and division. Occurrence of taxonomic diversity was revealed by species diversity which became the basic in terms of this investigation. Study of similarity degree of floral complexes was conducted applying method of group average with square of *Euclidean distance and similarity coefficient [4].*

Results and discussion

According to results of critical investigation, flora of grazing ecosystems consists of 1104 cultivars from 357 genera 68 families and 46 orders. In floral complexes of steppe grazing ecosystems there are 731 cultivars of vascular plants (66% of total flora), in meadow – 597 cultivars (44%), 174 cultivars (15%) are common for meadow and steppe ecosystems.

The general species composition of flora is quite conservative and underreacts the environment transformation. The most informative and integral parameters of dynamical tendencies are structural connections of ecotopological floral complaxes. These complexes are possible to consider as formal systematic elements, their interconnections are reflected by regularities of structural and functional organization of phytobiota during adaptation to ecotopical differentiation of landscapes. Specific occurrence of their response to environmental variations is changing of their composition, structure and connections between floral coenotical complexes, developing in certain ecotopes.

The most various species composition is appropriate for floral complexes of steppe cenosis, forming on watersheds with advanced chernozem and on slopes with eroded chernozem on clay (399 cultivars of 191 genera and 49 families, 426 cultivars of 220 genera and 50 families respectively); floral complexes of meadows with over-moistened and saline soils (139 species of 63 genera and 28 families, 117 species of 63 genera and 21 families respectively) are characterized by the poorest species composition (table 1). As to steppe grazing ecosystems floral complex of sandy steppes are marked by the poorest species diversity: 242 cultivars of 148 genera and 34 families.

As well as floristic variety which is determined by quantity of cultivars, genera and families, systematic structure of floral complexes is a quite important characteristic. Systematic structure as a system of local geographical populations of all spontaneously grown plants, with hierarchical structure [22], is an indicator of vegetation cover state in a certain environment. Studied floral complexes are presented by angiosperm plants, mainly bilobular, which makes 5-7 times more than monocotyledonous in floral complexes of steppe

ecosystems and 10 times more in floral complexes of stepped meadows. In floral complexes of meadow ecosystems availability of *Liliopsida* cultivars is much higher. An average species diversity per 1 family ranges from 5 (floral complexes of ecosystems on marsh and saline meadows) up to almost 9 (floral complexes of steppes with eroded chernozems on clay). A number of cultivars per genus doesn`t increase 2 (see table 1).

Table 1

Systematic structure of floral complexes of grazing ecosystems

Parameter	Grazing ecosystems									
	WCh	RGCh	RGG	RGL	OTCh	OTS	SM	FAM	SM	MM
A number of divisions	3	3	3	3	3	3	2	2	2	2
classes	4	4	4	4	4	4	3	3	3	3
orders	33	34	29	31	29	27	32	31	19	26
families	49	50	42	40	39	34	40	39	21	28
genera	191	220	174	170	172	148	168	157	63	63
cultivars	399	426	336	303	322	241	296	296	117	139
A number of cultivars per a family	6,9	8,5	8	7,6	8,5	7,1	7,4	7,6	5,6	5,1
A number of cultivars per genus	2,1	1,9	1,9	1,8	1,9	1,6	1,8	1,9	1,8	2,2
Ratio of Magnoliopsida: Liliopsida	6 : 1	6 : 1	5 : 1	5 : 1	6 : 1	7 : 1	10 : 1	4 : 1	2 : 1	2 : 1
Asteraceae: Poaceae	2 : 1	2 : 1	2 : 1	2 : 1	2 : 1	2 : 1	3 : 1	1 : 1	1 : 1	1 : 1
Asteraceae: Fabaceae	3 : 1	3 : 1	3 : 1	3 : 1	3 : 1	5 : 1	2 : 1	1 : 1	1 : 2	-

Notes. *Hereinafter: steppe grazing ecosystems: WCh – on watersheds with advanced chernozem, RGCh – ravine and gully with eroded chernozem on clay and slates; RGG – ravine and gully with eroded chernozem on granites; RGL – ravine and gully with chernozem on limestones; OTCh – over-flood – terraced with eroded chernozem on chalk; OTS – over-flood – terraced on sands; meadow: SM – stepped on eroded chernozem, FAM - flood actual with meadow soils, SM – flood with saline soils, MM – flood-marsh with over-moistened (marsh) soils.*

In floral complexes of steppe ecosystems there are about 10-11 main families which number of cultivars is more than average; floral complexes of steppe meadows – 11, flood actual – 12, saline – 7, mars – 11 (table 2). Families *Asteraceae* (the first place in family spectrum of all floral complexes besides marsh meadow, where it takes the second stage) and *Poaceae* (the second-third place in all family spectrum besides floral complexes of stepped meados – the sixth stage) are characterized by the most various floral composition. A high rank is inherent for family *Brassicaceae* as well.

Table 2

Family spectrum of floral complexes in grazing ecosystems

Family	Grazing ecosystems*									
	WCh	RGCh	RGG	RGL	OTCh	OTS	SM	FAM	SM	MM
Asteraceae	**1** (80)	**1** (73)	**1** (50)	**1** (43)	**1** (51)	**1** (45)	**1** (50)	**1** (39)	**1** (19)	**2-3** (12)

Poaceae	**2** (40)	**3** (40)	**2** (36)	**2** (33)	**3** (30)	**3** (29)	**7** (15)	**2** (33)	**3** (14)	**1** (13)
Brassicaceae	**3** (37)	**2** (44)	**3** (29)	**4** (29)	**2** (38)	**4** (21)	**2** (37)	**6** (14)		
Lamiaceae	**4-5** (25)	**5** (28)	**6** (23)	**6** (19)	**4** (28)	**5-6** (10)	**10-11** (9)	**8-9** (11)		**4-5** (9)
Fabaceae	**4-5** (25)	**7** (25)	**7** (18)	**7** (17)	**5** (26)	**5-6** (10)	**3** (29)	**3** (31)	**4-6** (8)	
Rosaceae	**6** (22)	**8** (22)	**4** (27)	**5** (20)	**6** (20)	*11 (6)*	**9** (11)			
Scrophulariaceae	**7** (18)	**6** (24)	**8-9** (14)	**9** (12)	**8-9** (12)	**7-8** (8)	**6** (16)	**4-5** (16)	**6-9** (7)	
Caryophyllaceae	**8** (14)	**4** (29)	**5** (24)	**3** (32)	**7** (14)	**2** (40)	**4** (24)	**4-5** (16)	**7** (7)	
Boraginaceae	**9** (12)	**10** (14)	**10** (12)	**10** (10)	**10-11** (8)	**7-8** (8)	**8** (13)			
Ranunculaceae	**10** (11)	**9** (19)	**8-9** (14)	**8** (14)		**10** (7)	**5** (19)	**7** (12)		**6-9** (7)
Rubiaceae					**10-11** (8)	**9** (6)	**10-11** (9)	**5** (14)		**10** (5)
Polygonaceae								**10** (10)	**9** (5)	**6-9** (7)
Cyperaceae								**8-9** (11)	**4-6** (8)	**2-3** (12)
Juncaceae									**4-6** (8)	**4-5** (9)
Chenopodiaceae									**2** (15)	
Plantaginaceae									**8** (6)	
Apiaceae									**10-12** (3)	
Gentainaceae									**10-12** (3)	
Eguisetaceae									**10-12** (3)	
Orchidaceae										**6-9** (7)

**A number of cultivars is in brackets*

If agreed control variant is a steppe floral complex, developed on the watershed of advanced chernozem, having compared it with family and genus spectrum of other floral complexes, it makes possible to reveal adaptive properties of certain plant cultivars to definite conditions of macro- and edaphotope. So, in floral complexes of steppe grazing ecosystems, developed on slopes of gullies with eroded chernozem on clay, a number of cultivars belonging to the following families increases: *Brassicaceae* (2 stage/44 species) and *Caryophyllaceae* (4/29); while a number of cultivars of *Fabaceae* family decreases (7/25), which is caused by severe edaphic conditions. The same tendency and considerable increasing of *Rosaceae* rank occur in floral complexes of steppe ecosystems with eroded chernozem on limestone and granite outcrops (4/27 and 5/20 respectively). Rank of *Caryophyllaceae* has considerable trend to go up (2/40) in family spectrum of sandy steppe floral complexes, while *Rosaceae* family didn`t become a part of this floral complex family list, consisting of much more cultivars in comparison with average index. Family spectrum of floral complexes in steppe ecosystems on chalk outcrops is mainly identical to agreed control (see table 2).

As to floral complex of stepped meadow ecosystems the following families take leading positions: *Asteraceae* (1 place/50 species), *Brassicaeae* (2/37) and *Fabaceae* (3/29). *Poaceae* family takes only sixth place, at the same time *Lamiaceae* and *Rubiaceae* considerably goes down. The main families in floral complexes of flood actual meadows are *Asteraceae* (1 place/39 species), *Poaceae* (2/33), *Fabaceae* (3/31); *Cyperaceae* and

Polygonaceae appear in this spectrum as well. In floral complexes of saline and marsh meadows the following families takes confident leading positions: *Chenopodiaceae* (2/15 and 2-3/12 respectively), *Cyperaceae* (4-6/8 and 2-3/12) and *Juncaceae* (4-6/8 and 4-5/9); but family *Fabaceae* isn`t included into floral complex of marsh meadows (see table 2).

Species diversity indices of some family pairs being "indicators" of large floristic divisions are quite informative [21]. So, ratio of species number of *Asteraceae* to *Poaceae* in floral complexes of steppe ecosystems and floral complexes of stepped meadows makes 2:1, in other meadow floral complexes this ratio is 1:1 (see table 1). Ratio of *Asteraceae* and *Fabaceae* ranges from 3:1 (steppe ecosystems) up to 5:1 (stepped meadows) (for regional flora ratio of these families species number makes 2,3:1 [2]. In floral complexes of meadow ecosystems this ratio varies in favor of *Fabaceae* family (besides floral complexes of meadows with over-moistened soils, which don`t include species of this family). Therefore, floral complex of stepped meadows is close to floral complexes of steppe ecosystems according to study floristic parameters, while in other floral complexes of meadow ecosystems monocotyledonous plants prevail and a number of species belonged to *Fabaceae* and *Poaceae* families extends.

More complete internal structure and specific characteristics of floral complexes are presented in genus spectrum (table 3).

Table 3

Genus spectrum of floral complexes in steppe grazing ecosystems

Genus	Grazing ecosystems					
	WCh	RGCh	RGG	RG	OTCh	OTS
1	2	3	4	5	6	7
Centaurea	**1** (10)	**4-6** (7)	**5** (7)	**2-3** (8)	**8-10** (5)	**6-10** (4)
Rosa	**2** (9)	**7-10** (6)	**1** (11)	**1** (9)	**1** (9)	
Stipa	**3-5** (8)	**4-6** (7)	**3** (9)	**8-12** (5)	**2-7** (6)	**2-3** (6)
Veronica	**3-5** (8)	**1** (12)	**8–13** (5)		**2-7**(6)	
Salvia	**3-5** (8)	**4-6** (7)		**5-7** (6)		
Galium	**6-7** (7)	**3** (8)	**4** (8)	**8-12** (5)		**4-5** (5)
Potentilla	**6-7** (7)	**2** (10)	**2** (10)	**4** (7)	**2-7** (6)	**2-3** (6)
Sisymbrium	**8-9** (5)					
Euphorbia	**8-9** (5)	**7-10** (6)			**8-10** (5)	
Astragalus	**8-9** (5)		**6-7** (6)	**2-3** (8)	**2-7** (6)	**6-10** (4)
Medicago	**8-9** (5)					
Vicia	**8-9** (5)					
Verbascum	**8-9** (5)	**7-10** (6)				
Cirsium	**8-9** (5)					
Inula	**8-9** (5)					
Dianthus		**7-10** (6)	**8–13** (5)		**2-7** (6)	**1** (7)
Elytrigia			**8–13** (5)			
Thymus			**8–13** (5)	**8-12** (5)		
Allium			**6-7** (6)		**2-7** (6)	
Elythigia				**5-7** (6)		
Euphorbia			**8–13** (5)			
Isatis					**8-10** (5)	
Linum				**5-7**(6)		
Artemisia				**8-12** (5)		**6-10** (4)
Gypsophila						**6-10** (4)
Otites						**4-5** (5)
Tragopogon						**6-10** (4)

**A number of cultivars is in brackets*

The following genera include the largest number of cultivars in floral complexes of steppe ecosystems developing on watersheds with advanced chernozem: *Centaurea*, *Rosa*, *Stipa*, *Veronica*, *Salvia;* steppe ecosystems with eroded chernozem on clay*: Veronica*, *Potentilla, Galium, Salvia*, *Stipa*, *Centaurea.* As to ecosystems with granite, limestone and chalk soils the leading places is taken by *Rosa* genus with some differences appeared in the following genera: granite soil - *Potentilla*, *Stipa*, *Galium*, *Centaurea,* limestone soil - *Centaurea*, *Astragalus*, *Potentilla*, *Salvia*, *Linum*, *Elytrigia,* chalk soil - *Stipa*, *Veronica*, *Potentilla*, *Astragalus*, *Dianthus*, *Allium*. Peculiarity of floral complexes developing on sandy substrate, quite clearly reveals genus spectrum, which differs from floral complexes of steppe ecosystems considerably: *Dianthus Potentilla*, *Stipa*, *Galium*, *Otites*. Genus spectrum of floral complexes in meadow ecosystems are characterized by wide species diversity. The main genera of floral complexes in stepped meadows are *Trifolium*, *Galium*, *Euphorbia*, *Ranunculus, Artemisia*; in flood actual meadows - *Trifolium, Ranunculus*, *Juncus*, *Carex*, *Galium;* saline - *Plantago*, *Juncus, Puccinella, Lithrum, Atriplex*, *Xanthium,* marsh - *Juncus*, *Carex*, *Galium*, *Ranunculus* (16% of the total number of cultivars) (table 4).

Table 4

Genus spectrum of floral complexes in meadow grazing ecosystems

Genus	Grazing ecosystems			
	SM	OM	SM	MM
1	2	3	4	5
Galium	**2-3** (7)	**4-5** (8)		**3-4** (5)
Potentilla	**6-10** (3)			
Veronica	**6-10** (3)	**6** (7)		**5-8** (4)
Artemisia	**5** (4)			
Festuca	**6-10** (3)			
Plantago	**6-10** (3)		**2-3** (6)	
Trifolium	**1** (12)	**1** (13)		
Carex		**4-5** (8)	**7-12** (3)	**2** (8)
Ranunculus	**4** (5)	**2** (10)		**3-4** (5)
Euphorbia	**2-3** (7)			
Juncus		**3** (9)	**2-3** (6)	**1** (9)
Poa		**7-8** (5)		
Centaurium		**7-8** (5)		
Rumex		**9-12** (4)		
Vicia		**9-12** (4)		
Pilosella		**9-12** (4)		
Lithrym		**9-12** (4)		
Atriplex			**1** (7)	
Puccinella			**4-6** (4)	
Xanthium			**4-6** (4)	
Lythrum			**4-6** (4)	
Seneceo			7-12 (3)	
Spergularia			7-12 (3)	
Cripsis			7-12 (3)	
Sisimbrium			7-12 (3)	
Persicaria			7-12 (3)	**5-8** (4)
Epilobium				**5-8** (4)
Dactylis				**5-8** (4)
Alisma				**9-15** (3)
Eleocharis				**9-15** (3)
Lythrum				**9-15** (3)
Glyceria				**9-15** (3)
Poa				**9-15** (3)

Thypha				**9-15** (3)
Mentha				**9-15** (3)

Method of group average applying square of Euclidean distance the cluster analysis of species composition similarity of floral complexes was conducted which revealed accurate classification of floral complexes into 2 clusters: steppe (floral complexes of all steppe ecosystems and floral complexes of stepped meadows) and meadow (floral complexes of actual, marsh and saline meadows) (Figure).

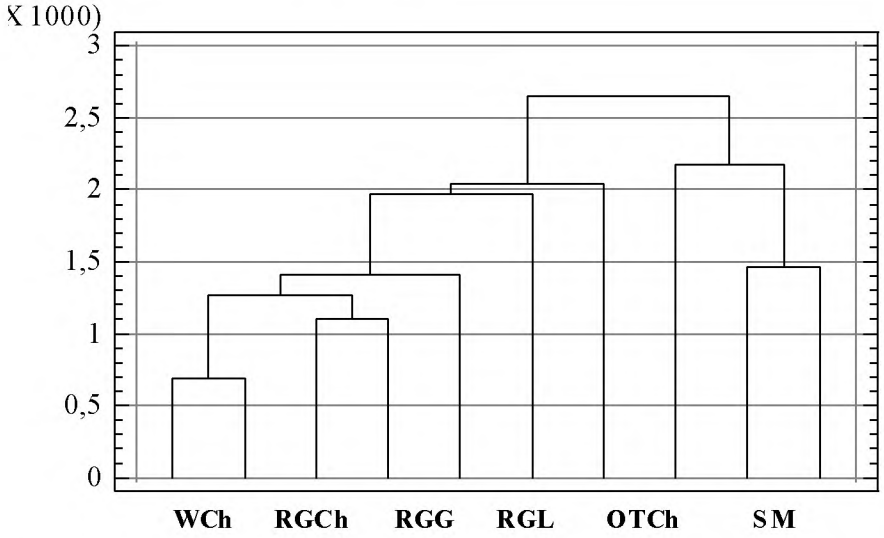

Figure. Similarity dendrite of floral complexes in grazing ecosystems in Southeast of Ukraine

Steppe cluster has a floral complex of steppes with sandy soil; meadow – saline soils, and that indicates specific conditions of their development. As a result of comparison analysis of floral complexes similarity applying similarity coefficient we have various diversity of floral complexes of meadows with saline and over-moistened soils, as well as floral complexes of sandy steppes (similarity index <0,3) (table 5). Similarity between floral complexes of actual and marsh meadows, stepped and steppe with eroded chernozem on clay is little bit higher (index <0,4). Similarity index for other floral complexes ranges from 0,5-0,6.

Table 5

Similarity indices of floral complexes in grazing ecosystems

	WCh	**RGCh**	**RGG**	**RGL**	**OTCh**	**OTS**	**StM**	**FAM**	**MM**	**SM**
WCh	1	0,6	0,5	0,5	0,5	0,3	0,4	0,07	0	0
RGCh	0,6	1	0,3	0,6	0,6	0,4	0,5	0,1	0	0
RGG	0,5	0,3	1	0,6	0,5	0,3	0,3	0,06	0	0
RGL	0,5	0,6	0,6	1	0,6	0,3	0,3	0,05	0	0
OTCh	0,5	0,6	0,5	0,6	1	0,3	0,3	0,05	0	0
OTS	0,3	0,4	0,3	0,3	0,3	1	0,2	0,08	0	0
StM	0,4	0,5	0,3	0,3	0,3	0,2	1	0,4	0,05	0,05
FAM	0,07	0,1	0,06	0,05	0,05	0,08	0,4	1	0,4	0,1
MM	0	0	0	0	0	0	0,05	0,4	1	0,1
SM	0	0	0	0	0	0	0,05	0,1	0,1	1

Conclusions

As a result of the conducted research of taxonomic diversity and systematic structure of floral complexes in grazing ecosystems of Southeast of Ukraine, the following should be noted: floral complexes of steppe ecosystems, developing on watersheds with advanced

chernozem and on slopes of ravines with eroded chernozem on clay are characterized by the largest floristic diversity (399 and 426 cultivars respectively), the poorest diversity is appropriate for floral complexes of meadow ecosystems with over-moistened and saline soils (139 and 117 species respectively). The following families include the largest number of species: *Astearceae, Poaceae* and *Brassicaceae. Fabaceae* family increases its rank in floral complexes of stepped and flood actual meadows, *Caryopyhyllaceae* family – in floral complexes of steppes with limestone and sandy soils. Floral complexes of steppe ecosystems with advanced chernozem include quite a lot of cultivar representatives of the following genera: *Centaurea, Rosa, Stipa, Veronica, Salvia;* for ecosystems with eroded chernozem on clay *Veronica, Potentilla, Gallium* take the leading positions; granite soils - *Rosa, Potentilla, Stipa;* limestone soils - *Rosa, Centaurea, Astragalus;* chalk soils - *Rosa, Stipa, Veronica, Potentilla, Dianthus, Allium;* sandy soils - *Dianthus, Stipa, Potentilla*; stepped meadows - *Trifolium, Galium, Euphorbia;* flood actual - *Trifolium, Ranunculus, Juncus;* flood with over-moistened soils - *Juncus, Carex, Galium, Ranunculus;* saline soils - *Juncus, Plantago, Lythrum, Puccinella, Atriplex, Xanthium*. Study of floral complexes similarity indicates the peculiarity of species composition of floral complexes in saline meadows and sandy steppes.

References

1. *Bogovin A.V., Slyusarenko I.T., Tsarenko M.K.* Travjanysti biogeotsenozy, yihne polipshennya ta ratsionalne vykorystannya. – K.: Agrarna nauka, 2005. – 360 s.

2. *Burda R.I.* Antropogennaya transformatsiya flory. – Kiev: Nauk.dumka, 1991.– 167 s.

3. *Burda R.I., Yurchenko I.T., Shevchuk O.M.* Rol synatropnoyi flory pasovyshch u suchasnomu florogenezi // Ukr.botan.journ. – 1998. – T. 55, № 1 – S. 13-20.

4. *Vasylevych V.I.* Statisticheskiye metody v geobotanike. – L.: Nauka, 1969. – 232 s.

5. *Vinogradov B.V.* Osnovy landshaftnoj ekologii. – Moskva: GEOS, 1988. – 418 s.

6. *Glukhov O.Z., Shevchuk O.M., Kokan T.P.* Naukovi osnovy vidnovlennya travjanyh phytotsenoziv v stepovij zoni Ukrainy. – Donetsk: Veber, 2008. – 198 s.

7. *Glukhov O.Z., Ostapko V.M., Shevchuk O.M., Suslova O.P., Prykhodko S.A.* Ekosystemy pivdennogo shodu Ukrainy, riznomanitnist ta klassyfikatsiya // vidnovlennya porushenyh ecosystem: materialy Tretyoyi mizhnarodnoyi naukovoyi konferentsii. – Donetsk: Veber, 2008. – S. 23-30.

8. *Didukh Ya.P.* Metodika analizu flor girskyh regioniv // Ukr.botan.journ. – 1986. – T. 43, - № 6. – S. 74-78.

9. *Didukh Ya.P.* Metodologichni pidkhody do stvorennya klasyfikatsii ecosystem // Ukr.botan.journ. – 2004. – 61, № 1. – S. 12-23.

10. *Didukh Ya.P.* Teoretychni pidkhody do stvorennya klassyfikatsii ecosystem // Ukr.phytotsenot.zbirnyk. – Seriya S. Phytoekologiya. – Vyp. 23. – Phytosotsiotsentr, 2005. – S. 3-15.

11. *Didukh Ya.P., Shelyag-Sosonko Yu.P.* Klasyphikatsiya ecosystem – imperatyv natsionalnoyi ekomerezhy Ukrainy // Ukr.botan.journ. – 2001. – 58, № 4. – S. 393-403.

12. *Kagalo O.O.* Struktura ta florystychni zvjazky luchnyh floroekotopologichnyh kompleksiv tsentralnoyi chastyny pivnichno-zakhidnogo Podillya // Pratsi NTSH. – Ekologichny zbirnyk na poshanu A.S.Lazarenka. – 1999. – S. 84-104.

13. *Kagalo A.A.* Bazoviye kategorii sistemnoj florologii kak osnovy okhrany bioraznoobraziya // Mater. mezhdunar. nauchn. konf., posvyashch. 160-letiyu Sukhumskogo bot.sada. – Sukhum.Izd-vo ATU, 2003. – S. 141-144.

14. *Kagalo O.O.* Teoretychni zasady systemnoyi phytosozologii v aspekti vyvchennya ta otsinky bioriznomanittya v umovakh antropogenno zminenogo landshaftu //

Promyslova botanica: stan ta perspektyvy rozvytku: materialy VI mizhnarodnoyi naukovoyi konferentsii. – Donetsk, 2010. – S. 207-215.

15. *Lavrenko Ye.M.* Stepi / Rastitelnostj yevropeiskoj chasti SSSR. – L.: Nauka, 1980. – S. 203-272.

16. *Novosad V.V.* Flora Kerchensko-Tamanskogo regiona. – K.: Nauk.dumka, 1992. – 278 s.

17. *Ostapko V.M.* Prodromus yestestvennoj rastitelnosti yugo-vostoka Ukrainy. – Donetsk, 1995. – 142 s.

18. *Ostapko V.M., Shevchuk O.M.* Flora ta roslynnist luchnyh pasovyshch pivdennogo shodu Ukrainy // Visnyk Lvivskogo uniiversytetu. Seriya biologichna. – 2004. – Vyp.36. – S. 57-62.

19. *Shevchuk O.M.* Rol pasovyshchnyh ecosystem v zberezhenni bioriznomanitnosti // Promyshlennaya botanika. – 2012. – Vyp. 12 – S. 61-66.

20. *Shevchuk O.M.* Florystychna diferentsiatsiya pasovyshchnyh ecosystem yak osnova ih zberezhennya ta vidtvorennya: Avtoref. diss.. d-ra biol.nauk: 03.0.05 / Natsionalny botanichny sad im.M.M. Gtyshka NAN Ukrainy. – Kiev, 2013. – 40 s.

21. *Shmidt V.I.* Matematicheskiye metody v botanike. – L.: Izd-vo Leningr. Un-ta, 1984. – 288 s.

22. *Yurtsev B.A., Kamelin R.V.* Ocherk sistemy osnovnyh ponyatij floristiki / Teoreticheskiye i metodicheskiye problemy sravnitelnoj floristiki. – L: Nauka, 1987. – S. 242-266.

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Shevchuk O.M. Taxonomic diversity of floral complexes on the territory of grazing ecosystems in southeast of Ukraine // Bull. of the State Nikit. Botan. Gard. – 2015. – № 115. – P. 16-25.

The article covers study results of taxonomic diversity and systematic structure of ecotopological floral complexes on the territory of grazing ecosystems in southeast of Ukraine. In terms of the research it was determined that floral complexes of meadow grazing ecosystems are characterized by much less species diversity while a number of *Liliopsida* specimens increases there. Range peculiarities of families and genera and similarity measure of floral complexes were revealed. The most various range of families and genera are marked out for floral complexes of sandy steppes, bottomland meadows on over-moistened and saline soils.

Key words: *grazing ecosystems; ecotopological floral complexes; taxonomic diversity; systematic structure; range of families; range of genera.*