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CONTRIBUTIONS TO THE FLORA OF STEPPES OF THE BLACK SEA REGION (UKRAINE)

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ABSTRACT. New localities of 28 rare species from central part of the northern Black Sea region, Ukraine, are presented. The characteristic of the distribution of each species together with the types of their habitat are described. Moreover, conservation status according to the Ukrainian and European lists of rare and endangered species (Red Data List of Kherson region, Red Data Book of Ukraine, European Red List and IUCN Red List of Threatened Plants) is given.

Key words: flora, rare species, fescue/feather-grass poorly forb steppes, steppes, *Festuco-Brometea*, Ukraine

Introduction

The flora of Black Sea steppes differs from other European floras in their great originality. That territory is a western border of natural range of many species growing in the huge steppe zone of Eurasia, like *Allium regelianum* A. Becker ex Iljin, *Cymboschasma borysthena* (Pall. ex Schlecht.) Klokov & Zoz, *Elytrigia stipifolia* (Czern. ex Nevski) Nevski, *Fritillaria ruthenica* Wikstr., *Tulipa schrenkii* Regel, *Stipa asperella* Klokov & Ossyczynjuk, and *S. ucrainica* P. Smirn. The significant number of species which were firstly described from there, including *Achillea euxina* Klokov, *Allium perversitum* Klokov, *Astragalus borysthenicus* Klokov, *Betula borysthena* Klokov, *Caragana scythica* (Kom.) Pojark., *Centaurea breviceps* Iljin, *C. paczoskii* Kotov ex Klokov, *C. taliewii* Kleopow, *Chamaecytisus graniticus* (Rehman) Rothm., *Chenopodium zerovii* Iljin, *Dianthus bessarabicus* Klokov, *Eremogone cephalotes* (M. Bieb.) Fenzl, *Gymnospermium odessanum* (DC.) Takht., *Minuartia bilykiana* Klokov, *Otites maeoticus* Klokov, *Papaver tumidulum* Klokov, *Polygonum novoascanicum* Klokov, *Puccinellia syvaschica*

Bilyk, *Tragopogon tesquicola* Klokov, *Tulipa hypanica* Klokov & Zoz etc., emphasizes its unique character.

The original and rich flora of the southern Ukraine steppes has attracted many researchers. The first fragmentary data about the flora of Black Sea steppes were recorded in the works of V. Zuev, P. Pallas and I. Guldenschedt dated XVIII century. F. Teetsman published first materials to the flora and vegetation of steppes in the vicinity of Askania-Nova in 1825. Intensive botanical research on the steppes, carried out since the middle of XIX century, resulted in outstanding works of V. Besser, X. Ledebour, I. Andjееvski, N. Sredinski, I. Shmalgauzen, K. Lindenmann, P. Shesterikov, and J. Paczowski, including "The flora of the middle and southern Russia, Crimea and Northern Caucasus" (**Shmalgauzen** 1895, 1897), "Flora Chersonensis" (**Lindenmann** 1881, 1882), "Manual of the plants of vicinity of Odessa" (**Shesterikov** 1912), as well as in description of new plant species (*Astragalus odessanus* Besser, *Onobrychis gracilllis* Besser, *Scutellaria verna* Besser, *Heliotropium stevenianum* Andr.). The most important contribution to the steppe studies has been made by J. Paczowski. A lot of his monographs have been devoted to this region: "The flora of the Kherson region" (**Paczowski** 1914), "The description of vegetation of the Kherson region" (**Paczowski** 1915, 1917, 1927), "The basic features of the development of flora of southwestern Russia" (**Paczowski** 1910), "Weed vegetation of fields of the Kherson region" (**Paczowski** 1911), "Wild-growing grasses of the Kherson region" (**Paczowski** 1913), etc. He has also described new species *Cerastium schmalhauseni* Pacz. and *Genista scythica* Pacz. In XX century, the research on steppe flora of the southern Ukraine has been continued by M. Klokov, M. Kotov, E. Lavrenko, Yu. Kleopov, G. Bilyk, and M. Shalyt, and more recently by V. Tkachenko, L. Krytsaya, M. Boiko, and E. Vedenkov. They have described many new plant species, investigated flora and vegetation of protected territories, made floristic lists of some territories, and generalized the results of floristic research in the following monographs: "The flora of Ukraine" (1935-1965), "Grasses of Ukraine" (**Prokudin et al.** 1977), "Vegetation of the lower Dnieper" (**Bilyk** 1956), "Flora of the Askaniya-Nova reserve" (**Vedenkov** 1989), "Plavni Black Sea's region" (**Dubyna and Shelyag-Sosonko** 1989), etc.

Study area

The Northern Black Sea region occupies the southern part of Ukraine. This territory adjoins the Black Sea, from the Danube up to Dnieper, and further to east along north-west coast of the Azov Sea to Berdyansk city. Administratively, it covers four regions (Odessa, Nikolaev, Dnepropetrovsk and Zaporozhye) partially and the Kherson region completely. The southern border of this region is northern coastal line of the Black Sea, whereas the northern coincides with physical-geographical border of Black Sea lowland.

We investigated the central part of the northern Black Sea region within the limits of administrative borders of the Kherson and the Nikolaev regions (Fig. 1). Geomorphologically, the area of the research is located on Dnieper-Buh loess plain of the Black Sea lowland. According to geobotanical division it is classified as Dnieper-Buh fescue/feather-grass steppes, originally meadows ("podi") and limestone vegetation (**Boiko et al.** 1998).

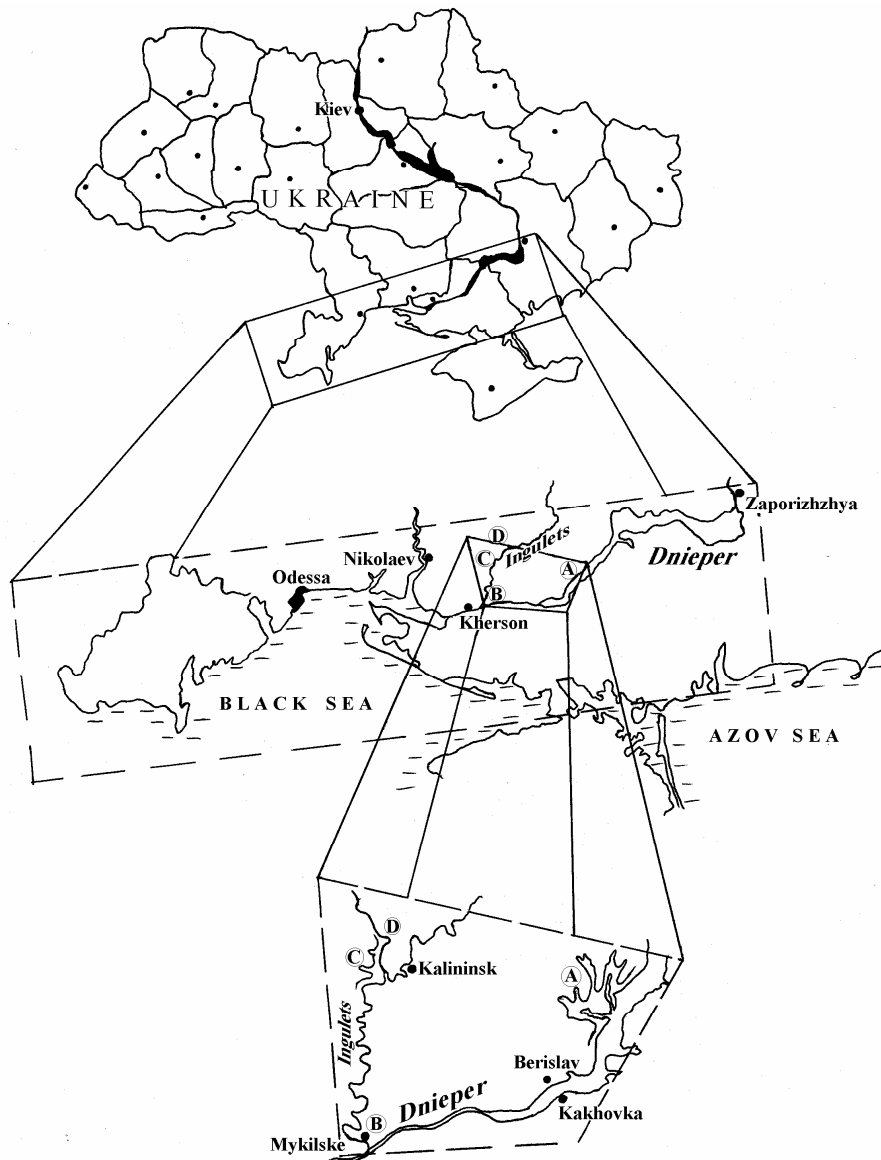


Fig. 1. Study area (for details of the sites A, B, C, and D see List of localities)
 Ryc. 1. Obszar badań (szczegółowy opis stanowisk A, B, C i D w tekście, zob. Wykaz stanowisk)

The region has a moderate to continental climate with the average annual temperature of $+9^{\circ}\text{C}$ (July $+23^{\circ}\text{C}$, January -3.5°C) and the rainfall of less than 400 mm.

Formerly, the majority of the northern Black Sea region was occupied by fescue/feather-grass poorly forb steppes. Their vegetation cover mainly consists of tuft grasses. Compared to meadows and fescue/feather-grass rich forb steppes located to the north, these steppes have less forb and increased participation of ephemers and ephe-

meroids. This results from a drier climate and a different type of soil. Nowadays, the plain areas in the northern Black Sea region are almost completely ploughed up, therefore the virgin steppe vegetation occurs only on terraces of river valleys and steppe gullies. A gully (“balka” in Ukrainian) is defined as an elongated ravine of erosive origin, formed as a result of temporary or constant drain. River terraces and gullies in the northern Black Sea region have similar geological structure and soil cover. The soil of the upper parts of terraces and gullies consists of southern poorly-humus steppe chernozem, and southern salted chernozem. The middle parts of the slopes are covered by petrophyte tuft-steppe soil, and the lower part – by meadow-chernozem and meadow soil. The bottom of the gullies is covered with meadow, meadow-marsh, meadow-solonetz and meadow-proluvium soils, which are characteristic of waterless valleys. The soil from slope is often completely washed off. In these places, limestones, marl, clay and loess are exposed. These slopes often have stony nature.

Material and methods

The information on localities of rare and protected plants in steppes of the Black Sea region is given. Authors’ own collections served as the study material. Field research was carried out since May to June 2002; the purpose was to study the vegetation of steppes of the Black Sea region using the method of Braun-Blanquet.

The research was carried out in four localities in the Kherson and Nikolaev regions (Fig. 1). To avoid duplication of the information about species localities, we included the list of localities (see List of localities), and designated them with letters in the list of taxa. More detailed information on sites, as well as a brief floristic comment for each species are given in the list of taxa.

Conservation status of protected and rare taxa are given for species listed in Red Data List of the Kherson region (**Boiko** and **Podgaini** 2002), Red Data Book of Ukraine (**Shelyag-Sosonko et al.** 1996), European Red List (according to **Shelyag-Sosonko et al.** 1996), and IUCN Red List of Threatened Plants (according to **Mosyakin** 1999).

Abbreviations:

RDLKHR – Red Data List of Kherson region (Categories used: 0 – extinct (probably extinct), 1 – endangered, 2 – vulnerable, 3 – rare, 4 – indeterminate)

RDBU – Red Data Book of Ukraine (Categories used: see **RDLKHR**)

ERL – European Red List (Categories used: Ex – extinct, Ex/E – extinct/endangered, E – endangered, V – vulnerable, R – rare, I – indeterminate)

IUCN RL – 1997 IUCN Red List of Threatened Plants (Categories used: see **ERL**).

The species in the list of taxa are given in alphabetic order. The names are given by **Mosyakin** and **Fedoronchuk** (1999). Herbarium specimens of the species have been deposited in the collection of the Kherson State Pedagogical University (KHER), and separate doublets in the herbarium of Department of Botany, August Cieszkowski Agricultural University of Poznań (POZNB).

List of localities

A – the Kherson region, Berislav district, near village Mylove;

B – the Kherson region, Bilozerka district, near village Mikilske, steppe slope of Ingulets rivers;

C – the Nikolaev region, Snigurivka district, near village Turkuly, steppe slopes of gully and terraces of Ingulets and the Visun rivers;

D – the Nikolaev region, Snigurivka district, near the village of Yakovlevka, steppe slopes of gullies and terraces of the Visun river.

List of taxa

Alliaria petiolata (M. Bieb.) Cavara & Grande (*A. officinalis* Andrz. ex M. Bieb.)

Localities: D

Widely distributed epiphyte in northern areas of Ukraine and Crimea, however, rather rare in a strip of the Black Sea steppes. Recorded in XIX century in Odessa and Nikolaev (**Shmalgauzen** 1895). In XX century, indicated with no specific locality, sporadically distributed in wetlands of lower reaches of Danube, Dniestr, and Dnieper rivers (**Dubyna** and **Shelyag-Sosonko** 1989). We recorded a few individuals in one locality only at the bottom of the Zhukova gully. Another specimen of this species, gathered in the Black Sea region, was deposited in the KHER herbarium (the Kherson region, Bilozerka district, the vicinity of village Mikilske, bottom of a steep slope of the Ingulets river, northern exposition, 23.04.2002, leg. R. Melnik).

Astragalus dasyanthus Pall.

Conservation status: RDLKHR (3), RDBU (2), ERL (V), IUCN RL (I)

Localities: A

The species is distributed only in the northern part of the Black Sea region in a strip of fescue/feather-grass steppes (**Boiko** 1988, **Boiko** and **Podgaini** 2002, **Visulina** 1954, **Shelyag-Sosonko et al.** 1996).

Few localities were discovered in the vicinity of Mylove. *A. dasyanthus* grew in plain areas around gully, clay slopes of the gully, and on flat, well-fixed stony slopes.

Astragalus henningii (Steven) Klokov

Conservation status: RDLKHR (3), IUCN RL (R), ERL (R)

Localities: A

A few localities are known in the northern Black Sea region (**Boiko** and **Podgaini** 2002, **Vedenkov** 1989, **Visulina** 1954). We recorded few individuals on a flat clay slope in the upper part of Mylovskaya gully.

Bromopsis cappadocica (Boiss. & Balansa) Holub (*Bromus cappadocicus* Boiss. & Balansa)

Localities: A, B

This species is widely distributed on stony slopes and screes in Crimea, and in Asia Minor. In Ukraine three isolated sites are known outside Crimea: “the Khomutovskaya steppe” reserve (Donetsk region), the vicinities of Kherson city, and Snegiryovka district

(Nikolaev region) on the river Ingul [Prokudin et al. 1977, Opredelel'... 1987; in Prokudin et al. (1977) *B. cappadocica* is probably wrongly given on the Ingul river instead of the Ingulets river, as there is no Ingul river in the Snegiryovka district]. The species is widely distributed on stony slopes and screes in both investigated sites on the Dnieper.

Moreover, we discovered numerous individuals of *Bromopsis erectus* (Huds.) Fourr., a species of the same genus that is foreign and new to the steppe region of Ukraine. Locality: between villages of Mylove and Sukhanovo (the Berislav district, Kherson region) in crops *Onobrichis viciifolia* Scop. In Ukraine, this species grows naturally in western part of the country (Zakarpate, Lvov and Ternopol region). As a foreign species, it has been recorded in two localities in Kiev (vicinity of cities Bila Tserkva) and Cherkassy region (Drabovski district, vicinity of Kazachye village) (Prokudin et al. 1977, Opredelel'... 1987). Probably it was brought with *Onobrichis viciifolia* seeds.

Caragana scythica (Kom.) Pojark.

Conservation status: RDLKHR (2), RDBU (2), ERL (R)

Localities: C, D

The range of this endemic species is limited to the southern part of Eastern Europe. In the Black Sea region, it sporadically occurs on erodic slopes and outcrop of stony rocks (Boiko and Podgaini 2002, Vedenkov 1989, Shelyag-Sosonko et al. 1996).

It was noticed in both investigated sites in the Nikolaev region: on the rivers Ingulets and Visun. Numerous individuals occurred frequently on clay slopes of various exposition, and less often on limestone outcrops and screes.

Chamaecytisus graniticus (Rehman) Rothm. [*Ch. skrobiszewskii* (Pacz.) Klaskova, *Cytisus graniticus* Rehman, *Cytisus skrobiszewskii* Pacz.]

Conservation status: RDLKHR (3), RDBU (3), ERL (V), IUCN RL (I)

Localities: C, D

Geographical range of this endemic relict species is limited to the area between southern Buh and Dnieper in Dnepropetrovsk, Nikolaev, and the Kherson regions (Boiko and Podgaini 2002, Shelyag-Sosonko et al. 1996).

As well as the previous one, this species was found in both investigated sites in the Nikolaev region, where it occurred rather frequently on more or less fixed stony slopes of both the Ingulets and Visun rivers, and on screes.

Clematis integrifolia L.

Conservation status: RDLKHR (3)

Localities: D

Very rare species known in the Black Sea region in few sites (Boiko 1988, Boiko and Podgaini 2002, Visulina 1953, Paczowski 1902). We recorded it in one place, where it had been previously discovered by Boiko (1988). Numerous individuals of this species were found on a steep slope of the Zhukova gully of northern exposition.

Crupina vulgaris Cass.

Localities: D

Rare species in the Black Sea region. All localities (Dobrochaeva 1965, Paczowski 1902, Shmalgauzen 1897) are quoted according to collections from XIX and the beginning of XX century. Recently, it has been recorded on the lower Danube and Dnieper, however with no specific locality (Dubyna and Shelyag-Sosonko 1989).

We found few individuals in one site on a limestone slope of the Ingulets river's right bank.

Cymboclasma borysthenica (Pall. ex Schlecht.) Klokov & Zoz (*Cymbaria borysthenica* Pall. ex Schlecht.)

Conservation status: RDLKHR (2), RDBU (1), ERL (E)

Localities: A, C, D

Relict endemic species of Eastern European steppes. In the Black Sea region, it is distributed mainly on limestone, loess outcrops, and steppe slopes (**Boiko** 1988, **Boiko** and **Podgaini** 2002, **Kotov** 1960, *Opredelitel'...* 1987, **Shelyag-Sosonko et al.** 1996, **Shmalgauzen** 1897).

We found significant number of sites of this rare species in three localities. It occurred frequently in the Mylovskaya gully, where it was distributed on plain sites, flat fixed slopes, and occasionally on steep eroded clay slopes.

Elytrigia nodosa (Nevski) Nevski (*Agropyron nodosum* Nevski)

Localities: C

The range of *Elytrigia nodosa* in Ukraine is limited to the Crimea Mountains, where the plant grows on open dry slopes, screes, and on seaside clay breakages of the mountains. **Krasova** and **Smetana** (1999) have reported a closely related *Elytrigia stipifolia* in steppe communities of the slopes of Ingulets in the Dnepropetrovsk region (Shirokovski district, Kobylna gully). *E. stipifolia* had been earlier recorded in the east area of Ukraine (Donetsk, Lugansk, and the Zaporozhye region) only (**Prokudin et al.** 1977).

A detailed morphological analysis of the specimens showed that our samples rather corresponded to the Crimean *Elytrigia nodosa*. It is possible that *E. nodosa* also occurs on the Kobylna gully examined earlier by **Krasova** and **Smetana** (com. **Krasova** and **Smetana** l.c.).

Only one site was recorded 2 km to the west from the Turculy village along a railway, on the slope of the right bank of the Ingulets river.

Ephedra distachya L. (*Ephedra vulgaris* Rich.)

Conservation status: RDLKHR (3)

Localities: A, B, C, D

It is a common species in the Black Sea region (**Boiko** and **Podgaini** 2002, **Dubyna** and **Shelyag-Sosonko** 2000, **Paczoski** 1902, 1914, **Umanets** 1988, **Shmalgauzen** 1897). It was found in all localities investigated, where it grew on stony and clay slopes of gully and rivers, on screes of various exposition, and – less often – on plain steppe sites.

Eremogone rigida (M. Bieb.) Fenzl (*Arenaria rigida* M. Bieb.)

Conservation status: RDLKHR (3), IUCN RL (R)

Localities: B

This protected species is rather common in the Black Sea region (**Boiko** and **Podgaini** 2002, **Vedenkov** 1989, **Dubyna** and **Shelyag-Sosonko** 2000, **Klokov** 1952, **Paczoski** 1902, **Shmalgauzen** 1895).

In the revealed site, it grew in the top part of a steep breakage of limestone slope on the right bank of the Ingulets river.

Euphorbia semivillosa Prokh.

Localities: D

A rare species for the Black Sea region recorded in few sites only (**Dubyna** and **Shelyag-Sosonko** 1989, **Klokov** 1954). One site with a small population was recorded at the bottom of the deep Zhukova gully.

Galium volhynicum Pobed. (*Asperula tyraica* Bess.)**Conservation status:** RDLKHR (2), ERL (R)**Localities:** A

This protected species is distributed mainly in the Black Sea region on the right-bank of Dnieper (**Boiko** and **Podgaini** 2002, **Klokov** 1961, *Opredelitel'...* 1987, **Paczoski** 1902, **Shmalgauzen** 1897).

One site in the Mylovskaya gully was found. The plant grew mainly on virgin areas and on fixed slopes of the gully, where it was common.

Genista scythica Pacz. (*Genista albida* Willd. f. *scythica*)**Conservation status:** RDLKHR (3), RDBU (3)**Localities:** A

Rare endemic pontic species distributed in the Black Sea region and in Northern Caucasus. In the region investigated, it occurs sporadically in a significant number (**Visulina** 1954, **Boiko** and **Podgaini** 2002, **Paczoski** 1900, **Shelyag-Sosonko et al.** 1996, **Shmalgauzen** 1895).

It is was a common species in the Mylovskaya gully, where it grew frequently in central part of a stone slope with not fixed rubble. *Genista scythica* is a dominant species in the scree form of *Linario tenuifoliae-Jurineetum brachycephalae* Krasova et Smetana 1999.

Medicago agrestis Ten.**Localities:** B

In Ukraine it has been recorded in the Crimea, where it grows on dry stony slopes. In the Black Sea region, it has been found in one site in the vicinities of the Kherson city (**Visulina** 1954, *Opredelitel'...* 1987). We found another site, where the plant grows on limestone slope of the Ingulets river. The population was small.

Melica altissima L.**Localities:** D

The species is considered as rather common in the Ukrainian forest-steppe and steppe, except for far south, where it occurs rarely (**Paczoski** 1902, 1913, 1914, **Prokudin et al.** 1977). We found it in one site at the bottom of the Zhukova gully.

Phlomis hybrida Zelen. (*Phlomis hypanica* Des.-Shost., *P. maeotica* Des.-Shost., *P. tuberosa* auct. non L.)

Conservation status: RDLKHR (2), ERL (I)**Localities:** A, B, C, D

This endemic species is rather common in the Black Sea region (**Boiko** and **Podgaini** 2002, **Vedenkov** 1989, **Cherepanov et al.** 1978).

We found it in all four localities. Contrary to *Phlomis tuberosa* L., it did not occur in more damp conditions, e.g. at the bottom of gullies and foots of slopes.

Poa sterilis M. Bieb.**Localities:** A, D

In Ukraine, it occurs on stony slopes in the Crimea, frequently often in mountain parts, and rare in foothill and plain areas. Besides the Crimea, it has been found only in few sites in the Kherson region on stony limestone slopes of the right bank of the Lower Dnieper [vicinity of villages Kachkarovka, Mylove and Tyaginka] (**Shmalgauzen** 1897, **Paczoski** 1913, **Prokudin et al.** 1977, *Opredelitel'...* 1987).

We recorded it in two sites. In the vicinity of the Mylove village, it was rather widespread. On slopes of the Mylovskaya gully, it occurred on the edge of a poorly stabilized slope, where *Poa sterilis-Stipa pulcherrima* community of scree nature has developed. Moreover, we found another locality on the Visun river, on the edge of the Zhukova gully, where *Poa sterilis* was recorded for the first time.

Polygala comosa Schkuhr

Localities: A

In Ukraine, it is a widespread species in northern plain areas [forest, forest-steppe and north steppes] (**Kotov** 1954, **Paczoski** 1902, *Opredelitel' ...* 1987). The only reliable information concerning the occurrence of *P. comosa* in the Black Sea region locates it in the vicinity of Girly village, Kherson region (**Shmalgauzen** 1895). We found the plant in one site, in the vicinity of the Mylove village, where it grew on a clay slope of the Mylovskaya gully.

Scorzonera stricta Hornem.

Localities: A

It has been recorded by **Shmalgauzen** (1897) in Odessa and Kherson only. Later, it has not been recorded in the Black Sea region, and its distribution in Ukraine has been thought to be limited to southeast forest-steppe and northeast steppe (**Katina** 1965, **Paczoski** 1902, *Opredelitel' ...* 1987). Recently, it has been noticed in the northernmost part of the Black Sea region [Dnepropetrovsk region, Shirokovski district, Kobylina gully] (**Krasova** and **Smetana** 1999). During our expedition, we discovered only one site on stabilized limestone slopes in the vicinity of the Mylove village. Earlier in the same year, we found it on limestone slopes of the Gold gully (Kherson region, Novovorontsovski district, *leg. et det. I. Moisienko*, 29.04.2002).

Stipa capillata L.

Conservation status: RDLKHR (3), RDBU (3)

Localities: A, B, C, D

This species is one of basic dominants of steppe phytocoenoses in the whole Eurasia, including the Black Sea region (**Boiko** 1988, **Boiko** and **Podgaini** 2002, **Vedenkov** 1989, **Dubyna** and **Shelyag-Sosonko** 2000, **Paczoski** 1913, 1914, **Prokudin et al.** 1977, **Shelyag-Sosonko et al.** 1996).

We found it in all four localities. In the investigated sites, it grew on plain area, where its projective cover in patches *Stipetum capillatae* Dziubałtowski 1925 reached up to 80%. On well fixed slopes of the gullies, the grass occurred frequently together with *Stipa lessingiana*.

Stipa lessingiana Trin. & Rupr.

Conservation status: RDLKHR (2), RDBU (2)

Localities: A, B, C, D

The general and local distribution of this species is similar to the previous one (**Boiko** 1988, **Boiko** and **Podgaini** 2002, **Vedenkov** 1989, **Paczoski** 1913, 1914, **Prokudin et al.** 1977). We found it in all four localities. It was common both in plain sites and on slopes of various exposition and different stages of stabilization.

Stipa pulcherrima C. Koch (*Stipa grafiانا* Steven)**Conservation status:** RDLKHR (3), RDBU (2)**Localities:** A

In Ukraine, it is rather common in left-bank forest-steppe and steppe areas, in particular in the southeast, whereas in other places, including the Black Sea region, it seldom occurs. It has been recorded in several sites in the Odessa and Nikolaev regions (**Prokudin et al.** 1977), and in the Kherson region (**Boiko and Podgaini** 2002), however without specified locality.

We found one site in the vicinity of Mylove village. Many plants grew on the edges of stabilized limestone slopes of the Mylovskaya gully together with *Poa sterilis*. Isolated individuals happened also on screes.

Stipa ucrainica P. Smirn.**Conservation status:** RDLKHR (2), RDBU (2)**Localities:** A, B, D

This species is considered endemic for pontic flora. It is a characteristic component of the southern Ukrainian steppes (**Boiko and Podgaini** 2002, **Vedenkov** 1989, **Paczoski** 1913, 1914, **Prokudin et al.** 1977, **Shelyag-Sosonko et al.** 1996).

We found it in three sites. It occurred on plain steppe sites, clay and limestone slopes of various exposition. On the Mylovskaya gully it occurred in the best preserved part of steppes, both on plain places and stabilized, mainly clay slopes of the upper part of the gully. On limestone slopes, it was replaced by *S. pulcherrima*.

Tulipa hypanica Klokov & Zoz (*Tulipa biebersteiniana* Schult. & Schult. p. p., *T. sylvestris* auct. non L.)**Conservation status:** RDLKHR (3), RDBU (2)**Localities:** A, B, C, D

The range of this local endemic is limited to the right-bank part of the Black Sea region (**Boiko and Podgaini** 2002, **Bordzilovski** 1950, **Shelyag-Sosonko et al.** 1996).

We recorded it in all sites investigated, where it occurred extensively on slopes of various exposition and plain sites.

Vinca herbacea Waldst. & Kit.**Conservation status:** RDLKHR (3)**Localities:** A, B, C, D

The species sporadically occurs on limestone slopes of rivers and gullies (**Boiko and Podgaini** 2002, **Visulina** 1957 a, **Paczoski** 1902).

The species was found in all four sites. It grows on steep gully slopes, mostly in the lower part and on the bottom. Most often it was observed together with various bush species. The plant was absent in plain sites.

Vincetoxicum intermedium Taliev [*Cynanchum intermedium* Kleopov, *C. minus* auct. non Koch, *Vincetoxicum fuscatum* (Hornem.) Reichenb. p. p.]**Conservation status:** ERL (I)**Localities:** A

Rare species in Ukraine, which sporadically occurs on outcrops of mountain rocks in some areas of forest-steppes and steppes, mainly in the east (**Visulina** 1957 b, **Opredelitel'...** 1987).

In the Black Sea region it has been recorded in one site only: the vicinity of the Novotroitsk village, Novotroitski district, Kherson region (**Visulina** 1957 b, *Opredelitel'...* 1987). However, this locality is dubious.

In the discovered locality, simple samples grew on limestone screes on steep gully slopes.

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MATERIAŁY DO FLORY STEPÓW OBSZARU MORZA CZARNEGO (UKRAINA)

S t r e s z c z e n i e

W artykule przedstawiono nowe stanowiska oraz charakterystykę siedliskową i geograficzną wybranych 28 gatunków roślin stepowych z obszaru południowo-wschodniej Ukrainy. Badaniami geobotanicznymi objęto dobrze zachowane powierzchnie stepu kostrzewowo-ostnicowego. Prowadzono je w czterech punktach terenowych zlokalizowanych na terenie okręgów administracyjnych miast Kherson i Nikolaev (ryc. 1). Do rzadkich bądź bardzo rzadkich gatunków badanego obszaru należą: *Clematis integrifolia* L., *Crupina vulgaris* Cass., *Bromopsis cappadocica* (Boiss. & Balansa) Holub, *Elytrigia nodosa* (Nevski) Nevski, *Euphorbia semivillosa* Prokh. i *Poa sterilis* M. Bieb.