

THREATENED WITH REGIONAL EXTINCTION VASCULAR PLANTS RECOMMENDED FOR STATE PROTECTION IN THE REPUBLIC OF MOLDOVA

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Rezumat: În lucrare sunt aduse date privind unele specii de plante vasculare amenințate cu dispariția din flora Republicii Moldova: *Achillea ochroleuca*, *Bufonia parviflora*, *Dianthus polymorphus*, *Eremogone biebersteinii*, *Erodium ciconium*, *Gypsophila pallasii*, *Herniaria glabra*, *Medicago rigidula*, *Physocaulis nodosus*, *Pimpinella titanophila*, *Plantago schwarzenbergiana*, *Saxifraga tridactylites*, *Silene italica*, *Silene supina*, *Silene viridiflora* și *Viscaria atropurpurea*, în vederea includerii lor în Cartea Roșie a Republicii Moldova (ediția 3).

Cuvinte - cheie: flora, Republica Moldova, plante vasculare rare

INTRODUCTION

International practice of compiling lists of rare, endangered and threatened with extinction species of different territories, numbering more than 40 years of activity, has convincingly proven usefulness and practical significance of such lists. Currently under the threat of extinction are about 20 thousand species of plants worldwide, about 100 species have already been lost to mankind. Each species is unique because it includes genetic information of many generations, studying and knowledge of which is of great scientific and practical importance. Many species of flora of Republic of Moldova are endangered due to natural and anthropogenic factors. Therefore rare and endangered species are subject to special protection at the national, regional and/or international levels.

In the process of preparation of the 3rd edition of the Red Book of the Republic of Moldova, there is a particular importance of the lists of threatened plants that are in urgent need of protection. These were the main considerations that guided the authors in producing this article.

MATERIAL AND METHODS

The List of rare plant species

was drawn from the literature [7, 8], materials deposited in the Herbarium of the Botanical Garden (Institute) of the Academy of Sciences of Moldova as well as based on the results of our own research data. During investigation of rare species of the Republic of Moldova a number of threatened (categories [CR], [EN] and [VU]) plant species were identified. All selected plant species are native to local flora and the taxonomy followed by the recent taxonomical literature [11]. The subsequent taxa are given in alphabetical order, each with the indication of the category of threat [3, 4], factors that threaten population existence, number of localities and floristic element.

RESULTS AND DISCUSSION

The vascular flora of Republic of Moldova includes about 1850 species [6, 8, authors personal data], of which a large proportion (25%) of rare species. Since the beginning of the 21st century more than 10 new species of vascular plants [2, 9, 12, 13] were identified on the territory of Republic of Moldova. Some of them (*Plantago schwarzenbergiana* Schur, *Dianthus polymorphus* Bieb., *Physocaulis nodosus* (L.) Tausch, *Veronica filiformis* Smith, *Rumex dentatus* L.,

Astrodaucus orientalis (L.) Drude) are extremely rare, registered only in 1-2 localities. Currently, under the state protection are taken 224 species [5], 98 of the rarest and valuable are included in the 2nd edition of the Red Book of Republic of Moldova [1].

During preparation of the 3rd edition of the Red Book of the Republic of Moldova a number of threatened species of high vascular plants were identified, which have to be taken under state protection:

***Achillea ochroleuca* Ehrh.** – *Asteraceae*. Critically Endangered species [CR]. In the Republic of Moldova is indicated for 2 localities. In the region is at the northern limit of distribution area. Pannonian-Pontic element. Limitative factors: grows in extreme conditions at the boundary of the area of distribution, habitat destruction and alien plant invasion due to human activity.

***Bufonia parviflora* Griseb.** – *Caryophyllaceae*. Endangered [EN]. In the Republic of Moldova is indicated for 6 localities. In the region is at the northwestern limit of distribution area. Pontic-Mediterranean element. Limitative factors: grows in extreme conditions at the limit of the area of distribution, reduced ability of propagation, steppe sectors afforestation, intensive grazing.

***Dianthus polymorphus* Bieb.**
– *Caryophyllaceae* (fig. 1) – a new



taxa for the flora of the Republic of Moldova. Critically Endangered species [CR]. In the region is found only in the vicinity of the Andriashevca Noua village, Slobozia district. Pontic-Sarmatian element. Limitative factors: fragmentation and afforestation of primary steppe areas, collecting as decorative by local population, intensive grazing.

Eremogone biebersteinii (Schlecht.) Holub – *Caryophyllaceae*. Endangered species [EN]. In the Republic of Moldova is indicated for 6 localities. In the region is at the southern limit of its distribution area. Pontic-Sarmatian element. Limitative factors: grows in extreme conditions at the edge of the area of distribution, collecting as decorative by local population, intensive grazing.

***Erodium ciconium* (L.) L'Her.**



– *Geraniaceae* (fig. 2). Critically Endangered species [CR]. In the region is found only near Copanca village, Causheni district. Euro-Mediterranean element. Limitative factors: extreme poor, fragmented and isolated population, afforestation of steppe areas, intensive grazing.

***Gypsophila pallasii* Ikonn.** – *Caryophyllaceae*. Vulnerable species [VU]. In the Republic of Moldova is indicated for 12 localities. At the northern limit of distribution. Balkan element. Limitative factors: grows in extreme conditions at the boundary of the area of distribution, increasing habitat destruction due to human activity, overgrazing steppe slopes.

***Herniaria glabra* L.** – *Caryophyllaceae*. Endangered species [EN]. In the region is indicated for 6 localities. Eurasian element. Limitative factors: increasing habitat destruction due to human activity, overgrazing natural grasslands.

***Medicago rigidula* (L.) All.** – *Fabaceae*. Critically Endangered species [CR]. In the Republic of Moldova is found only near Copanca village, Causheni district. In the region is at the northern limit of its distribution area. Mediterranean-Pontic-Sarmatian element. Limitative factors: grows in extreme conditions at the limit of the area of distribution, increasing habitat destruction due to afforestation activity of steppe vegetation, overgrazing steppe slopes.

***Physocaulis nodosus* (L.) Tausch** – *Apiaceae* (fig. 3) – a new



for 5 localities. In the region is at the western limit of its distribution area. Euro-Caucasian element. Limitative factors: grows in extreme conditions at the boundary of the area of distribution, isolated populations, specific habitat conditions, increasing habitat destruction due to afforestation activity of limestone slopes with alien tree species (*Robinia*, *Pinus* etc.).

***Plantago schwarzenbergiana* Schur** – *Plantaginaceae* (fig. 4).



Critically Endangered species [CR]. In the Republic of Moldova is indicated for 2 localities. In the region is at the eastern limit of its distribution area. Pannonian element. Limitative factors: grows in extreme conditions at the margin of the area of distribution, very small and isolated populations, specific habitat conditions (saltish meadows), increasing habitat destruction due to meadow overgrazing.

***Saxifraga tridactylites* L.** – *Saxifragaceae*. Critically Endangered species [CR]. In the region is indicated for 6 localities. Euro-Mediterranean element. Limitative factors: grows in specific habitat conditions, isolated populations, increasing habitat destruction due to afforestation activity with alien tree species, change in light conditions of habitats, alien plant invasion.

***Silene italica* (L.) Pers.** – *Caryophyllaceae* (fig. 5). Critically Endangered species [CR]. In the Republic



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of Moldova is found only near Sadova village, Calarash district. In the region is at the northern limit of its distribution area. Limitative factors: grows in extreme conditions at the boundary of the area of distribution.

***Silene supina* Bieb.** – *Caryophyllaceae*. Endangered species [EN]. In the region is indicated for 5 localities. Balkan-Caucasian element. Limitative factors: narrow ecological niche, isolated populations, specific habitat conditions, increasing habitat destruction due to afforestation activity of limestone slopes with alien tree species (*Robinia*, *Pinus* etc.), change in light conditions of habitats.

***Silene viridiflora* L.** – *Caryophyllaceae*. Critically Endangered species [CR]. In the Republic of Moldova is indicated for 3 localities. In the region is at the northeastern limit of its area. Central European-Mediterranean element. Limitative factors: grows in extreme conditions at the boundary of the area of distribution, collecting as decorative by local population, intensive grazing.

***Viscaria atropurpurea* Griseb.** – *Caryophyllaceae* (fig. 6). Critically Endangered species [CR]. In the Republic of Moldova is indicated for 3 localities. In the region is at the northeastern limit of its area. Central European-Balkan element. Limitative factors: grows in extreme conditions at the boundary of the area of distribution, collecting as



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decorative by local population, intensive overgrazing.

CONCLUSIONS

As the result of our investigation, we consider for the following species (threatened with regional extinction (categories [CR], [EN] and [VU]) – *Achillea ochroleuca*, *Bufonia parviflora*, *Dianthus polymorphus*, *Eremogone biebersteinii*, *Erodium ciconium*, *Gypsophila pallasii*, *Herniaria glabra*, *Medicago rigidula*, *Physocaulis nodosus*, *Pimpinella titanophila*, *Plantago schwarzenbergiana*, *Saxifraga tri-dactylites*, *Silene italica*, *Silene supina*, *Silene viridiflora* and *Viscaria atropurpurea* are to be both taken under the state protection and included in the 3rd edition of the Red Book of the Republic of Moldova.

REFERENCES

1. Cartea Roșie a Republicii Moldova. Ed. II. Chișinău: Știința, 2001. 287 p.
2. Ghendov V., Izverscaia T., Șabanova G., Negru A. *Rumex dentatus* L. (*Polygonaceae*) – specie nouă pentru flora Republicii Moldova //Bull. Șt. Revistă de Etnografie, Științe ale Naturii și Muzeologie. Vol. 21, Chișinău, 2009. P. 12-15.
3. IUCN. IUCN Red List Categories and Criteria: Version 3.1. IUCN Species Survival Commission. IUCN, Gland, Switzerland. 2001.

4. IUCN. Guidelines for application of IUCN Red List Criteria at Regional Levels: Version 3.0. IUCN Species Survival Commission. IUCN, Gland, Switzerland. 2003.

5. Legislația ecologică a Republicii Moldova (1996-1998). Chișinău: Societatea Ecologică «BIO-TICA», 1999. 233 p.

6. Negru A. Determinator de plante din flora Republicii Moldova. Chișinău: Universul, 2007. 391 p.

7. Pânzaru P., Negru A., Izverschii T. Taxoni rari din flora Republicii Moldova. Chișinău, 2002. 148 p.

8. Гейдеман Т. С. Определитель высших растений МССР. Изд. 3-е. Кишинев: Штиинца, 1986. 636 с.

9. Изверская Т. Д., Гендов В.С., Шабанова Г. А. *Veronica filiformis* Smith (*Scrophulariaceae* Juss.) новый вид для флоры Республики Молдова //Lucrări științifice Univ. Agrară de Stat din Moldova. Vol. 16: Horticultură, viticultură și protecția plantelor. Chișinău, 2008. P. 361-364.

10. Пынзару П. Я. Заметки о флоре Республики Молдова и области Пьемонт в Италии //Новости систематики высших растений. Санкт-Петербург, 2013, Т. 44. с. 218-229.

11. Черепанов С. К. Сосудистые растения России и сопредельных государств (в пределах бывшего СССР). Русс. изд. СПб.: Мир и семья. 1995. 992 с.

12. Шабанова Г. А., Изверская Т. Д., Гендов В. С. Новый вид рода *Plantago* L. (*P. schwarzenbergiana* Schur) во флоре Республики Молдова //Mediul ambiant, 2008, nr. 5(41), p. 38-40.

13. Шабанова Г. А., Изверская Т. Д., Гендов В. С. О новом для Республики Молдова виде *Astrodaucus orientalis* (L.) Drude и редких видах степных сообществ //Bull. Șt. Revistă de Etnografie, Științe ale Naturii și Muzeologie. Vol. 21, Chișinău, 2009, p. 40-49.