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Minina N.N. *

ORCID: 0000-0001-6343-7283,

Birsk branch of the state budgetary educational institution of higher education «Bashkir State University», Birsk, Russia

* Corresponding author (mnn27[at]mail.ru)

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DISTRIBUTION OF RARE SPECIES OF THE GENUS *FRITILLARIA* L. IN THE REPUBLIC OF BASHKORTOSTAN

Research article

Abstract

The article presents data on the study of the distribution and ecology of two rare wild ornamental plant species of the local flora of the Republic of Bashkortostan of the genus *Fritillaria* L.. The studied species are perennial herbaceous plants with a short growing season, the spring of the flowering cycle. However, the species are rare plants whose ecology and distribution are poorly understood. The result of field trips and work with the herbarium Institute of Biology Federal state budget scientific institution Federal, Ufa research center, Russian Academy of Sciences (Ufa) mapped the distribution of species and described the communities in which these plants grow.

Keywords: *Fritillaria* L., *Fritillaria ruthenica* Wikstr., *Fritillaria meleagroides* Patrin ex Schult. et Schult.fil., rare species, wild plants, local flora, ornamental plants, ecology of the species, habitat.

Минина Н.Н. *

ORCID: 0000-0001-6343-7283,

Бирский филиал ФГБОУ ВПО Башкирский государственный университет, Бирск, Россия

* Корреспондирующий автора (mnn27[at]mail.ru)

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РАСПРОСТРАНЕНИЕ РЕДКИХ ВИДОВ РОДА *FRITILLARIA* L. В РЕСПУБЛИКЕ БАШКОРТОСТАН

Научная статья

Аннотация

В статье представлены данные по изучению распространения и экологии двух редких дикорастущих видов декоративных растений местной флоры Республики Башкортостан рода *Fritillaria* L.. Исследуемые виды являются многолетними травянистыми растениями с коротким вегетационным периодом, весенним циклом цветения. Однако эти виды являются редкими растениями, экология и распространение которых плохо изучены. В результате полевых поездок и работы с гербарием Института биологии Федерального государственного бюджетного научного учреждения, Федеральный Уфимский научный центр Российской академии наук (УФА) нанесено на карту распределение видов и описаны сообщества, в которых произрастают эти растения.

Ключевые слова: *Fritillaria* L., *Fritillaria ruthenica* Wikstr., *Fritillaria meleagroides* Patrin ex Schult. et Schult.fil., редкие виды, дикорастущие растения, местная флора, декоративные растения, экология вида, среда обитания.

1. Introduction

Wild species of the genus *Fritillaria* L. grow in the temperate zone of the Northern hemisphere. There are 13 species in the Russian flora [1, P. 116]. Wild species of the genus *Fritillaria* are of practical value as decorative early spring plants [2, P. 24]. In the Republic of Bashkortostan grow 2 wild species of the genus *Fritillaria* L., which are valuable as ornamental plants: *F. ruthenica* Wikstr. and *F. meleagroides* Patrin ex Schult. et Schult.fil. Wild-growing species of the genus *Fritillaria* belong to rare plants of the Republic of Bashkortostan that are reducing their range and need protection, and their distribution has not been sufficiently studied [3, P. 52]. The study of the distribution areas of these species in nature and their habitat conditions contributes to the conservation of these biologically valuable species.

2. Methods

Study of the distribution of species of the genus *Fritillaria* L. on the territory of the Republic of Bashkortostan was carried out during field trips on the territory of Belarus and in the course of working with the herbarium, Institute of Biology, Federal state budget scientific institution, Federal, Ufa research center, Russian Academy of Sciences (Ufa).

3. Results

Fritillaria ruthenica Wikstr. — a perennial plant with a short growing season, the spring of the flowering cycle. Refers to katekorii bulbous plants, georeferenced. Reproductive shoot one 15-50 cm high. The bulb consists of two fleshy scales fused together at the base. Leaves are slightly stalk-embracing, linear, sharp; lower whorled or opposite, middle alternate, upper-filiform, converging 2-3, with spirally twisted ends. Flowers 1-5 in a rare brush at the top of the stem in the axils of the upper leaves (Fig.1). Pedicels are curved. Perianth bell-shaped, dark red, with a darker indistinct chess pattern, yellowish inside with a greenish stripe. The outer lobes of the perianth are narrowly oval, the inner lobes are obovate. Nectaries are shallow, round-oval, sharply protruding outward in the form of tubercles. Fruit-winged hexagon box.

Geographical distribution. It is found in the European part of Russia: Volga-Don, Upper-Dnieper, near the Black sea, Lower-Don, Zavolzhsky, Lower-Volga floristic regions; in the Caucasus: Pre-Caucasian floristic region; in Western Siberia: Upper-Tobolsk floristic region; in Central Asia: Aralo-Caspian (Northern part), Baltic, Tien-Shan, Syr-Darya Podgorny floristic regions [4, P. 116]. European meadow-steppe species. Endemic to the European part of the USSR and Northern Kazakhstan [5, P. 215].

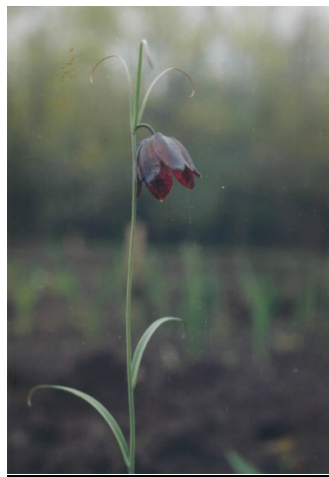


Figure 1 – *Fritillaria ruthenica* in the flowering phase

In the Republic of Bashkortostan, *Fritillaria ruthenica* is found in the Bashkir Pre-Urals (Alsheyevsky, Bizhbulyaksky, Davlekanovsky districts), in the southern Urals (Kugarchinsky, Zianchurinsky districts) and in the Bashkir Trans-Urals (Khaybullinsky, Baymaksiy districts). This species is most often observed in the Western foothills of the Southern Urals within the Zianchurinsky district (Fig. 2).

Ecology. It grows on stony slopes, in meadow steppes and on forest edges in thickets of shrubs [6, P. 15-22].

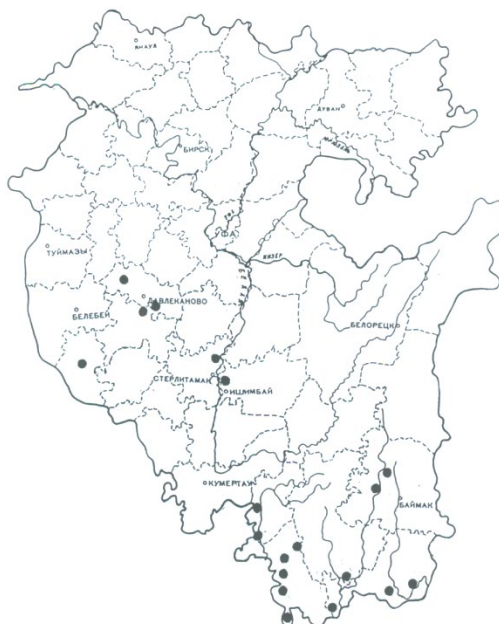


Figure 2 – Distribution points of *Fritillaria ruthenica*

Fritillaria ruthenica — meadow-steppe plant. In the natural habitats studied by us, it grows in grass-grass steppes and in thickets of steppe shrubs in communities with the following species: *Stipa sareptana* A. Beck., *Hieracium virosum* Pall., *Artemisia latifolia* Ledeb., *Caragana frutex* (L.) C. Koch, *Plantago urvillei* Opiz, *Centaurea ruthenica* Lam., *Galium boreale* L., *Trommsdorffia maculata* (L.) Bernh., *Festuca pseudovina* Hack. ex Wiesb., *Poa stepposa* (Kryl.) Roshev., *Campanula wolgensis* P. Smirn., *Salvia stepposa* Shost., *Inula hirta* L., *Veronica incana* L., *Filipendula vulgaris* Moench, *Artemisia pontica* L., *Taraxacum officinale* Wigg., *Falcaria vulgaris* Bernh.

Security measures. *Fritillaria ruthenica* it is listed in the "Red book of the Republic of Bashkortostan" [7, P. 52]. This species is rare everywhere. It is included in the list of rare and endangered plants of the Urals. It is protected in the Bashkir state reserve, as well as in some natural monuments—the southern shore of the lake Aslykul in Davlekanovsky district and on the Shaitan-Tau ridge in Khaybullinsky district [8, P. 221].

Fritillaria meleagroides Patr. ex Schult. et Schult. fil. — monopodial bulbous single-legged polycarpic herbaceous plant 20-60 cm tall. The main shoot lives in the soil, and only the flower-bearing shoot is aboveground. The bulb is flattened, white, covered with a brown film-like shell. Leaves are alternate, at the base of the semi-stem-embracing, narrowed towards the end, unlike the Russian river, uncoiled. The flower is single hanging, the perianth lobes are 2-3 cm long, oblong-elliptical, dark brown-purple, with an indistinct chess pattern (Fig. 3). The fruit is a blunt-triangular, back-ovoid box.

Geographical distribution. It is found in the European part of Russia: near the Black sea, upper Dnieper, Volga-Don, Zavolzhsky, Lower Volga floristic areas; in Western Siberia: upper Tobolsk, Altai, Irtysh floristic areas; in Central Asia: the Aral-Caspian, Baltic floristic areas [4, P. 120]. Eurasian steppe species [5, P. 226].



Figure 3 – *Fritillaria meleagroides* in the flowering phase

In the Republic of Bashkortostan, *Fritillaria meleagroides* is found in the Bashkir Pre-Urals (Bizhbulyaksky, Davlekanovsky, Miyakinsky, Chishminsky districts) and in the Bashkir Trens-Urals (Baymasky, Khaybullinsky districts). It is absent in the southern Urals (Fig. 4).



Figure 4 – Distribution Points of *Fritillaria meleagroides*

Ecology. An ecologically specialized moisture-loving species that requires constant moisture for normal development [9, P. 61-55]. It grows in salty floodplain meadows, along river floodplains [6, P. 15-22].

Fritillaria meleagroides — meadow-marsh plant. In the natural areas of growth studied by us, it occurs on salty mixed grass and grass meadows in lowlands in communities with species: *Sanguisorba officinalis* L., *Plantago maxima* Juss. ex Jacq., *Filipendula vulgaris* Moench, *Calamagrostis epigeios* (L.) Roth, *Poa palustris* L., *Artemisia armeniaca* Lam., *Inula aspera* Poir., *Veronica longifolia* L., *Plantago urvillei* Opiz, *Silaum silaus* (L.) Schinz et Thell., *Erungium planum* L., *Potentilla goldbachii* Rupr., *Seseli libanotis* (L.) Koch., *Senecio jacobaea* L., *Viola stagnina* Kit., *Stellaria palustris* Retz, *Bromopsis inermis* (Leys.) Holub.

Security measures. Intensively collected by the population because of the beautiful flowers, a rare species [10, P. 253]. It is listed in the "Red book of the Republic of Bashkortostan" [7, P. 53].

The studied species of the genus *Fritillaria* L. are rare plants with limited habitats. Our research contributes to limiting the territories where these species occur to human activities for the purpose of protecting these species.

Conflict of Interest

None declared.

Конфликт интересов

Не указан.

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