

Botany

New Data for Two Rare Plant Species of Georgian Flora

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ABSTRACT. There are more than a few rare and endangered plant species in the flora of Georgia. To find their distribution areas and new populations is vital for their survival and protection. In Autumn, 2017, during the floristic-geobotanical studies in Tbilisi surroundings (East Georgia), two rare species of Georgian Flora were discovered. These species are: 1. *Spiranthes spiralis* (L.) Chevall (family Orchidaceae) and 2. *Sternbergia colchiciflora* Waldst. & Kit. (family Amaryllidaceae). One of them, *Sternbergia colchiciflora* Waldst. & Kit. was included in “Red data book of the Georgian SSR”. *Spiranthes spiralis* is spread in moist and moderately moist ecosystems, whereas *Sternbergia colchiciflora* grows in semiarid ecosystems. We located them at the foothills of south-facing macro-slopes of Saguramo ridge. One single population for each of these two species was recorded within the new area. The present paper includes new coordinates of their distribution zones, habitats and associated plants species. Based on given bibliography, older distribution areas are included as well. The paper contains photos of these plants. © 2018 Bull. Georg. Natl. Acad. Sci.

Key words: *Spiranthes spiralis*, *Sternbergia colchiciflora*, flora of Georgia, rare species, habitat

In Autumn, 2017, during a floristic-geobotanical and ecological research in Tbilisi surroundings (East Georgia), new distribution areas of the two rare species of the flora of Georgia were found. These species are: 1. *Spiranthes spiralis* (L.) Chevall. and 2. *Sternbergia colchiciflora* Waldst. & Kit.

1. *Spiranthes spiralis* (L.) Chevall. (Fig. 1) is the representative of the Orchidaceae family. Roots have the shape of tubers. Leaves form a rosette at the bottom of the stem. Roots are in shape of tubers.

Blooming starts after 13-15 years. Flowers are white in color. They are located spirally around the flowering stem. It blooms in Autumn.

General distribution area includes Atlantic, Central and South Europe, West Transcaucasus and Talish, as well as a small area in South-West Asia [1-4]. However, the area is disjunctive. Spreads up to 1400 m s.l. *S. spiralis* is a mesophyte. Grows in moist and moderately moist ecotopes, in slightly acidic, as well as alkaline soil, which is often with limestone. Its characteristic habitats are: different

types of meadow, forest edges and glades, swamps, garrigues and open pine forests. It also grows in road-sides and lawns.



Fig. 1. *Spiranthes spiralis* (L.) Chevall.

In Georgia its main distribution areas are in the west regions, slightly spreading in East Georgia as well (Shida Kartli) [4]. However, no materials collected from East Georgia are kept in herbariums of Georgia (TBI and TGM).

In various countries (Denmark, Ukraine, Czech Republic, Bulgaria, France, Great Britain, Switzerland, Russia), with different status *S. spiralis* is included in red lists and red books.

We located *Spiranthes spiralis* at the foothills of south-facing macro-slopes of Saguramo ridge, North side of Avchala settlement, adjacent to Saint Peter's Church. Here it grows in secondary meadow-steppe plant communities and artificial greenery stands. Floristic composition of secondary meadow-steppe plant communities is rich with species: *Bothriochloa ischaemum*, *Dactylis glomerata*, *Potentilla recta*, *Eryngium campestre*, *Hypericum perforatum*, *Stipa capillata*, *Prunella vulgaris*, *Centaurea ovina*, *Teucrium polium*, *Falcaria vulgaris*, *Plantago lanceolata*, *Phleum phleoides*, *Cynosurus echinatus*, *Achillea sp.*,

Filipendula vulgaris, *Teucrium nuchense*, *Cleistogenes serotina*, *Dianthus subulosus*, *Koeleria cristata*, *Melica transsilvanica*, *Poa angustifolia*, *Xeranthemum squarrosum*. Characteristic species of artificial greenery stands are: *Cotinus coggygria*, *Rosa canina*, *Carpinus orientalis*, *Spiraea hypericifolia*, *Paliurus spinachristi*, *Thalictrum collinum*, *Filipendula vulgaris*, *Dianthus subulosus*, *Potentilla recta*, *Prunella vulgaris*, *Festuca sp.*, *Dactylis glomerata*, *Salvia nemorosa*, *Rumex tuberosus*, *Plantago lanceolata*, *Phleum phleoides*. The coordinates of the population discovered by us are: 41° 50.215' N / 44° 47.433' E; 41° 50.210' N / 44° 47.452' E; 41° 50.198' N / 44° 47.449' E; 41° 50.203' N / 44° 47.430' E. The population area is approximately 640 m². About 50 plant individuals were recorded. The Herbarium specimens gathered by us are kept in Georgian National Herbarium (TBI).

2. *Sternbergia colchiciflora* Waldst. & Kit. (Fig. 2) is the representative of the Amaryllidaceae family. It is a typical geophyte plant, with bulbs. Blooms in Autumn. Flowers are yellow.



Fig. 2. *Sternbergia colchiciflora* Waldst. & Kit.

The general distribution area of the species includes South-East and East Europe, Mediterranean and Caucasus, as well as a small area in South-West Asia [5-8]. It mostly grows in hemixerophilic habitats (Steppes, Semi-deserts, hemixerophilic Shruberies).

In Georgia it has a disjunctive area. Its distribution in Georgia was known to be from Iori Plateau

(surroundings of Dedoplistskaro and village Karistskali, Shavimta Mountain and Makhata Mountain), Kaspi environs (near Kvernaki range) and Kvemo Kartli (Elisabethal) [9, 10].

We located *Sternbergia colchiciflora* population at the foothills of south-facing macro-slopes of Saguramo ridge, North side of Avchala settlement. The population coordinates are: 41° 50.527' N / 44° 46.695' E - 41° 50.522' N / 44° 46.693' E - 41° 50.526' N / 44° 46.676' E - 41° 50.533' N / 44° 46.683' E. Here *Sternbergia colchiciflora* grows in secondary meadow-steppe communities. The population area is approximately 283 m². The characteristic species are: *Stipa capillata*, *S. pennata*, *Onobrychis cyri*, *Galium verum*, *Koeleria cristata*, *Eryngium campestre*,

Plantago lanceolata, *Polygala transcaucasica*, *Salvia nemorosa*, *Festuca valesiaca*, *Filipendula vulgaris*, *Potentilla recta*, *Achillea sp.*, *Dactylis glomerata*, *Onobrychis radiata*, *Trinia leiogona*, *Falcaria vulgaris*, *Oxytropis pallasii*, *Bothriochloa ischaemum*, *Dianthus subulosus*, *Xeranthemum squarrosum*. The ratio of the recorded plant individuals mentioned above was approximately 1 to 1 m².

Besides the population mentioned above, few single *Sternbergia colchiciflora* plant individuals were found in following coordinates: 41° 50.519' N / 44° 46.745' E. and 41° 50.339' N / 44° 47.372' E. Here they grow at the basis of secondary shrubs and in secondary meadow-steppe communities.

No herbarium specimens were gathered.

ბოტანიკა

ახალი მონაცემები საქართველოს ფლორის ორი იშვიათი სახეობის შესახებ

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საქართველოს ფლორაში არაერთი იშვიათი და გადაშენების პირას მყოფი სახეობაა. ასეთ მცენარეთა არეალების დაზუსტება და ახალი პოპულაციების გამოვლენა მათი დაცვისა და გადარჩენის საწინდარია. ჩვენ მიერ 2017 წელს თბილისის მიდამოებში ჩატარებული ფლორისტულ-გეობოტანიკური და ეკოლოგიური გამოკვლევების შედეგად გამოვლინდა საქართველოს ფლორის ორი იშვიათი სახეობის გავრცელების ახალი პუნქტები. ეს სახეობებია: 1. *Spiranthes spiralis* (L.) Chevall. (ოჯახი Orchidaceae) და 2. *Sternbergia colchiciflora* Waldst. & Kit. (ოჯახი Amaryllidaceae), მათგან *Sternbergia colchiciflora* Waldst.

& Kit. შეტანილი იყო “საქართველოს სსრ წითელ წიგნში”. *Spiranthes spiralis* ტენიან და ნახევრად ტენიან ეკოსისტემებშია გავრცელებული, ხოლო *Sternbergia colchiciflora* სემიარიდულ ეკოსისტემებში მოზარდი მცენარეა. ჩვენ მიერ ისინი ნაპოვნი იქნა საგურამოს ქედის სამხრეთ მაკროკალთის მთისწინებზე. ახალ არეალში ამ სახეობათა თითო პოპულაცია აღირიცხა, სტატიაში მოცემულია მათი საქართველოში გავრცელების ახალი პუნქტები კოორდინატების, ჰაბიტატებისა და თანმხლები სახეობების მითითებით. ლიტერატურული მონაცემების საფუძველზე მოცემულია მათი ძველი არეალებიც. სტატიას თან ერთვის მცენარეთა ფოტოები.

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