Bromus diandrus Roth (*Poaceae*), new species for the Bulgarian flora

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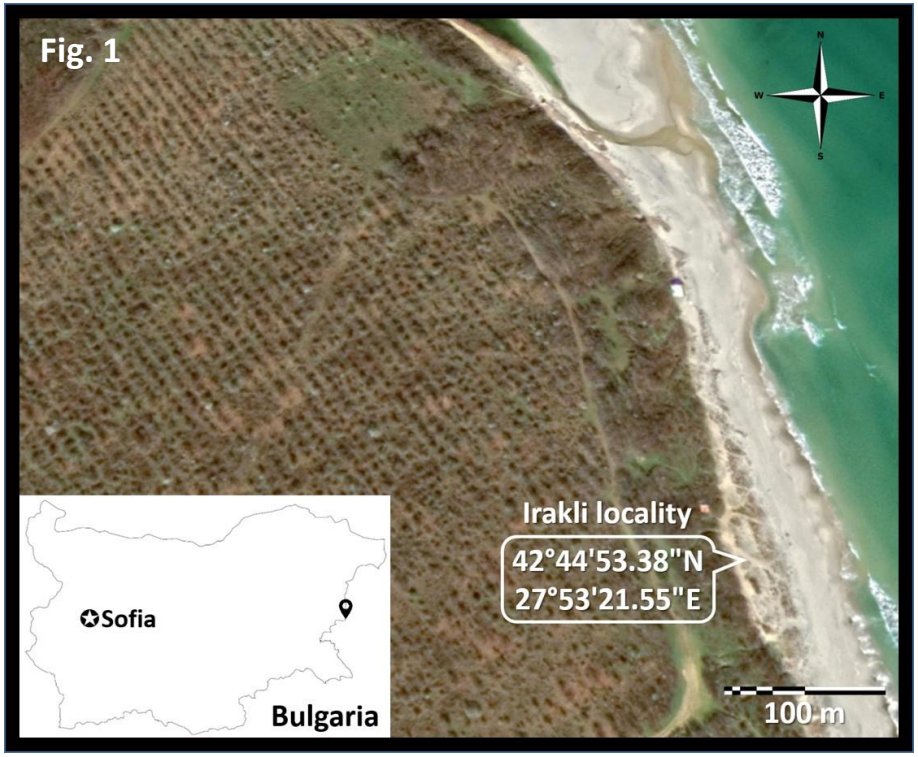
Introduction

The current presentation reviews *Bromus diandrus* Roth as a new entity in the Bulgarian flora. The species was observed on the coastal sands at Irakli locality, the Black Sea coast, on 15.08.2020 (Fig. 1).

It belongs to subgeneric section *Genea*, which is composed exclusively of annual species with ruderal nature (Smith 1980; Sales 1993; Saarela & al. 2014). Presently, sect. *Genea* accommodates 8-15 taxa globally (Smith 1980; Valdés & Scholz 2009), three of which *B. sterilis* L., *B. madritensis* L. and *B. tectorum* L. are documented from Bulgaria (Georgiev 1963; Assyov & Petrova 2012). The fourth member of the section in the country, *B. diandrus*, has never been recorded for the Bulgarian flora previously (Velenovsky 1891, 1898; Stojanov & Stefanov 1925, 1933, 1948; Georgiev 1963; Assyov & Petrova 2012; Petrova & Vladimirov 2018).



Materials and Methods

The species description is based on collected specimens with additions from (Smith 1980; Sales 1993; Saarela & al. 2014). The classification and nomenclature of the species follows (Smith 1980). Exsiccatae are deposited at SO and SOM. The geographical coordinates and raster image for the map visualization are extracted from Google Earth Pro 7.3.3.7786. The data on species range are presented according relevant literature. Habitat description is based on personal observations. The threatened species (Petrova & Vladimirov 2009) are indicated in superscript.

Results and Discussion

Bromus diandrus Roth, Bot. Abh. Beobacht.: 44 (1787) (Fig. 2a-f)

Plants annual. Culms 30–60 cm tall, loosely caespitose or single-stemmed, unbranched, erect or ascending, pubescent beneath inflorescences, glabrous from middle to basal parts, nodes darker. Leaf sheaths (b) pubescent; ligules 3-4 mm, membranous, often lacerate, margins serrate; leaf lamina 50-80 mm long, 3-5 mm wide, pubescent. Panicle 80-150 mm, axis more or less pubescent, panicle branches 1-4 per node, 0.9-45 mm long, pendant. Spikelet (c) 1(-2) per branch, up to 90 mm (awn included), longer than branches, more or less cuneate at maturity. Glumes (d) unequal, lanceolate, acute; lower glumes 12-22 x 1-2 mm, 1(-3) veined; upper glumes 18-30 x 2-3 mm, 3(-5) veined. Lemmas awned, 7-veined, 15-30 x 1-2 mm, bifid at apex, lobes (e) acute, hyaline, 5-8 mm long; Awns up to 60 mm long, straight, scabrous; Paleas 12-16 mm long, shorter than lemmas, ciliate at margins. Stamens 2(-3); anthers mostly 0.5–1.3 mm long, rarely up to 5.9 mm; caryopses 10−12 mm long, reddish brown. 2n = 42, 56 (Sales 1994; Oja & Laarmann 2002).

Similar species

B. diandrus has larger glumes, lemmas, lemma lobes and awns comparing with the rest of the representatives of sect. *Genea* from Bulgaria. From similar *B. sterilis* it differs also by usually shorter panicle branches and by differences in indumentum. From *B. rigidus* Roth, considered by some taxonomist (Saarela & al. 2014) as conspecific with *B. diandrus* it differs by loose and pendant panicles, ovate shape of the callus scar which length is not more than 1 mm, as well as by the presence of conspicuous constriction at the base of lemma (Fig. 2f) (see Sales 1993; Wilhalm & Pagitz 2001).

Fig. 3

Distribution and habitat

B. diandrus is native to the Irano-Turanian, Pontic and Mediterranean regions but introduced elsewhere as an alien weed (CABI). The habitat at the location could be classified as **B1.324** *Pontic white dunes* (EUNIS). The core species recorded were *Leymus racemosus* subsp. *sabulosus*, *Elymus farctus* subsp. *bessarabicus*, *Eryngium maritimum*[EN], *Cakile maritima* subsp. *euxina*, *Salsola ruthenica* and *Vulpia fasciculata.* Less abundant or presented as single individuals are *Ammophila arenaria*, *Peucedanum obtusifolium*, *Stachys maritima*[EN], *Euphorbia peplis*[VU], *Lactura tatarica*[EN], *Crambe maritima* and *Pancratium maritimum*[EN] (Fig. 3).

Population state and origin

B. diandrus is represent by more or less dense patches distributed amongst the tuffs of perennial grasses. Between 15-120 culms/m² were counted, covering an area of 200 m². Considering the number of individuals and population density, probably the species occurred at this area long time ago. The habitat is low to moderately affected and its current state is close to natural. The species is found within its native range and the environmental conditions correspond well to its ecological requirements. Therefore, *Bromus diandrus* could be presumably regarded as native for the Bulgarian flora.